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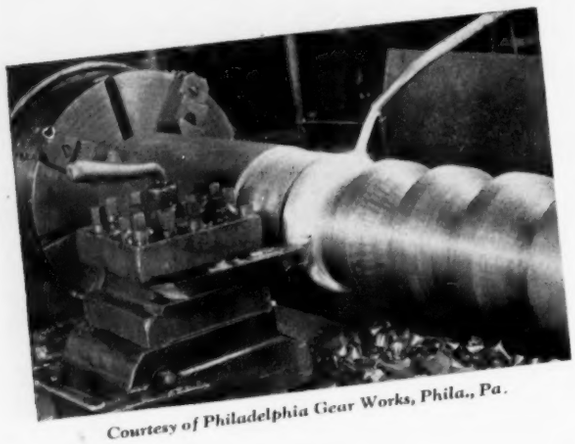
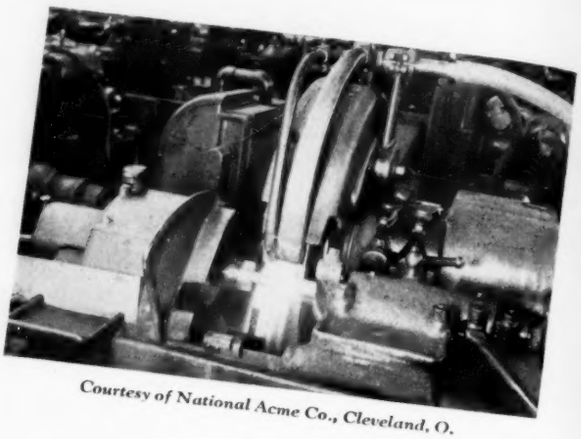


*Courtesy of Philadelphia Gear Works, Phila., Pa.*

**OPERATION:** TURNING GEAR BLANK.
**MACHINE:** LIBBY LATHE.
**MATERIAL:** STEEL FORGING.
**CUT:** 7/8 INCH; **FEED:** 1/32 INCH.
**LUBRICANT:** 1 PART SUNOCO TO 15 PARTS WATER.



*Courtesy of National Acme Co., Cleveland, O.*

**OPERATION:** GRINDING TWO DIAMETERS.
**MACHINE:** BROWN & SHARPE No. 30.
**MATERIAL:** TYPE EE STEEL FORGING.
**WHEEL:** 30 X 28 X 4 INCHES, R. P. M. 900.
**COOLANT:** 1 PART SUNOCO TO 40 PARTS WATER.

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Volume 92 Number 15

# STEEL

*For forty-eight Years—IRON TRADE REVIEW*

PRODUCTION • PROCESSING • DISTRIBUTION • USE

# The Week in Perspective

MINDFUL that general business razed the remnants of its depression-racked edifice and excavated to hard pan during the bank holiday and the ensuing adjustment, the iron and steel industry is proceeding methodically and cautiously to reconstruct its market structure. Raw materials appear the logical foundation on which to build, and the current widespread interest in pig iron and scrap is supplying a broad, substantial base.

**Bellwether of Pig Iron Flock Buys**

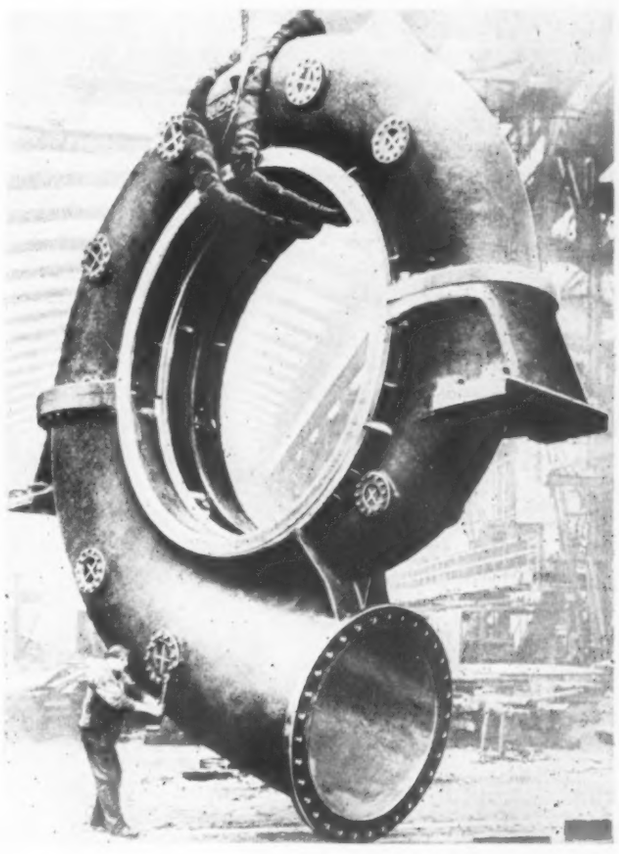
Not in months have pig iron reports recorded so much activity (p. 43). A radiator manufacturer whose buying usually is barometric and exceedingly sensitive to the turns in the market has covered. Shipments at Chicago are exceeding those of March by 50 per cent. Eastern Pennsylvania continues to talk in tonnages. Following a stiffer market in the East, prices in the Pittsburgh, Cleveland and Valley districts are appreciably stronger.

**Syndicate Moves 200,000 Tons of Scrap**

The iron and steel scrap market, too, is boiling (p. 46). The syndicate which is taking 200,000 tons from a southern railroad has placed 89,000 tons with an Ohio river steelmaker—a tonnage that would be commanding even in lush times. Increased steelworks operations—the rate having jumped 2 points to 17.5 per cent last week (p. 39)—are an incentive to stock as well as a necessity to buy for current consumption. Scrap prices also are advancing.

**Japan, Italy, Poland Fill Scrap Bins Here**

Nor is scrap entirely dependent upon its domestic market. A survey of exports discloses (p. 11) that the corner was turned in 1932, when the movement abroad expanded 91,000 tons to a total of 227,522 tons, while 1933 gives indications of being a 400,000-ton year. Japan, Italy, Poland have been draining scrap from the United States, with the result yard stocks now barely exceed 1,000,000 tons, or two months for steelworks operating at 25 per cent. However, railroad equipment rapidly approaching obsolescence is a reservoir. . . . A new technique developed by Europe for breaking up scrap utilizes armored pits and explosives (p. 52). Holes are burned into large pieces of scrap, dynamite is charged, the scrap low-



*Wide World Photo*

*This giant snail shell, with an outside diameter of 16 feet, is cast steel, the spiral shell of a water turbine whose wheel, in the center, is direct connected to a generator. The wheel was cast by Krupps for a South German power plant*

ered into a pit, which is covered by slabs, and charging box sizes are lifted out by a magnet.

### Titanium Stabilizes 18-8 Steel

Technically, the industry also is building broadly. . . . Subsidiaries of the United States Steel Corp. have developed (p. 16) a method of stabilizing 18-8 chrome-nickel stainless steels by the addition of titanium, halting intergranular corrosion. . . . A new British structural steel is called Chromador (p. 24); it contains small percentages of chromium and copper, having twice the corrosion-resistance of mild structural steel, 50 per cent greater strength, 20 per cent higher price. . . . New developments include a refinement of the use of tantalum carbide (p. 24) for machining.

### Auto Output Bridges Bank Holiday

For the 2-point rise in steel production last week major credit goes to the automotive industry (p. 13), which has snapped back to the January level and recovered the momentum lost during the bank holiday. Chevrolet, Ford, Plymouth, Pontiac, Dodge and Hudson are going especially strong. . . . Beer also is supplying impetus, makers of tin plate eyeing the market for tin containers (p. 37), while the first case made of rust-resisting steel is flown (p. 11) to the White House. . . . Despite the bank holiday, steel ingot operations in March resisted (p. 15) declining to the 1932 lows. . . . In Europe, reorganization of the Continental Steel Entente (p. 49) for 5 years is a factor for strength.

### If Dirigibles Were Strong as Their Masts—

Last Tuesday's disaster to the AKRON lessens the need for mobile telescoping masts at Lakehurst, N. J., and Sunnyvale, Calif., for mooring large dirigibles but does not detract from the mechanical achievment of their design and construction (p.21). A new field was pioneered, with alloy steel and welding a happy combination. . . . Another conquest for arc welding is a process for joining heavy plates without veeing or grooving of plate edges (p.26). Greater welding speed, physically superior welds and reduced costs are the principal advantages.

### Contours Govern Open-Hearth Economy

Economy in the operation as well as in the charging of open-hearth furnaces is possible by careful attention to design (p.25). Speed of the flow of gases across the hearth of furnaces and transfer of heat to the bath are regulated to a major degree by contour developments of the various cross sections and their areas. . . . From Germany comes a new refractory (p.30) for basic open hearths which resists the action of acid and basic slags at all temperatures.

# The VOICE of INDUSTRY

*Communications appearing here do not necessarily reflect the opinion of* STEEL *or of its editors.*

### A Plan for Control Through Industry Dictators

Prices of farm products are controlled by the supply and the demand. The demand is fairly uniform. People must eat. Control the supply and the price will control itself. If the farmers would admit that excess capacity exists that cannot now be used, and use only the land required to fill the demand, the question would be solved. A wheat farmer is much better off getting $1 per bushel from half his farm than 40c or less per bushel from all his farm.

Experience has proved that the farmers themselves cannot compel the reduction in acreage. A dictator is required. My suggestion is that the President appoint a dictator for each major market crop; wheat, corn, oats, and cotton. That those dictators be responsible to, or themselves form the federal farm board. That each dictator be given authority to limit the acreage of any crop to some fixed percentage of a five year average for each farm. That a license to market this crop be given to a farmer only after he has conformed with the regulations. That suitable penalties be provided for anyone who buys unlicensed commodities. That in the beginning this system be confined to the basic commodities, not including livestock, on the supposition that the price of corn and oats will control the live stock prices. If the dictatorship works in these commodities, it can be extended.

This suggestion differs from the President's message to Congress on March 16. It provides a more direct control of supply without the complication of price fixing and processing taxes. The results should be the same.

Raw material industries are just as much in need of firm handling as agriculture, and properly handled, the benefit to the general public would be great. As in the case of agriculture, prices are controlled largely by the supply and the demand. Conditions differ, but the solution can be much the same if the industries are execpted from the provisions of the antitrust acts.

The antitrust laws prevent agreements that limit competition. They do not prevent the adoption of wise policies by any one firm, and they do not and never were intended to prevent the adoption of these same wise policies by other firms. To adopt the policies of other means a willingness to follow and aid wise leadership. If a company is part of a good industry that is intelligently and honestly trying to keep that industry sound, usually that company is making a profit. If, on the other hand, the individuals in an industry are blindly trying to grasp every selfish advantage, the industry is unprofitable, and therefore a hazard to itself and to all others. There must be a profit margin to individuals and to business enterprises if we are to go forward. A successful business can be conducted without the repeal of the antitrust laws.

The establishment of industry dictators is a partial revival of the powers of the war industries board, in the federal trade commission and the federal farm board; this time to limit productions and raise prices. The emergency is just as great as in 1917, and just as definitely calls for prompt direct action, with the President in executive control.

GEORGE PAUL TORRENCE, President
Link-Belt Co.
Chicago.

# Exports Turn Spotlight on Scrap; Look for New Supplies

ACCUMULATING events, particularly in the East, have forced export scrap into the spotlight. Two hundred thousand tons purchased in this country since the first of the year; 20,000 tons leaving New York monthly; scrap export association being formed; first Hungarian ship to enter New York harbor since the World war takes scrap for Italy; scarcity of heavy steel developing in eastern seaboard districts; first shipments of export scrap in more than a decade leave Philadelphia—these and other developments have focused attention to the increasing movement of old material abroad.

All the more spectacular, these developments come at a time when domestic buying, while expanding, is comparatively light, when sales of anything in iron and steel assume importance at a few hundred tons, and when the "new deal" at Washington has caused many to believe, certainly all to hope, that a definite upturn in domestic activity is here.

### See Permanent Shortage

Increasing exports combined with the possibility of a definite upturn, have put an edge to speculation as to the future of scrap, the supply and prices. With steelmaking consuming an increasing proportion of scrap, many are agreed that a permanent shortage will eventually develop, as a concomitant to normal operations. But the expanding trend in export scrap brings the problem closer, along with consideration of stocks.

While some leading consumers still have heavy stocks, most have dipped into their supplies to conserve cash, and liquidation has extended to many of the dealers' yards. A number of yards, in fact, have been closed for months. Reliable estimates place prepared scrap steel in dealers yards at a little more than 1,000,000 tons, less than two month's supply, with mills operating at 25 per cent.

On the other hand, this country has certain reservoirs of scrap which might serve to stem any too precipitous rise in price, once general business is resumed. Railroads hold substantial supplies, potential and otherwise, particularly potential. For instance, more than 600,000 freight cars on Class 1 railroads have been in service 20 years or longer. (The normal life of a freight car is less than 20 years).

Scrapping of this old equipment already is in increasing evidence, an important development of this character being the recent sale of 16,000 freight cars and 100 locomotives by the Southern Railway to a syndicate of dealers for dismantling. Approximately 200,000 tons of iron and steel will be reclaimed.

More than 400,000 tons of steel scrap is to be obtained by one eastern dealer from the dismantling of 127 old shipping board vessels over the next three years or so. Incidentally, this is said to be the largest ship dismantling contract ever recorded, even exceeding the Ford operation of a few years ago, when ships amounting to 800,000 deadweight tons were scrapped, as against 1,000,000 deadweight tons in the present operation.

Then, too, there is much industrial scrap lying around, in many spots for the simple reason that prices have not covered cost of removal. Automobile scrap over the next few years will amount to a substantial supply, especially as the treatment of alloy material becomes better understood.

Yet foreign countries are bidding definitely for a portion of the available scrap—Japan, Italy, Poland, particularly Japan. Some of the shipping board boat scrap has been leaving Middle Atlantic ports for Japan for the past three or four months, all No. 1 steel or equivalent. Possibly 35,000 to 45,000 tons of this scrap will have been shipped by the latter part of June. What portion of the 400,000 tons of this boat scrap eventually will go abroad, nobody knows, as the owner is not inclined to contract far ahead.

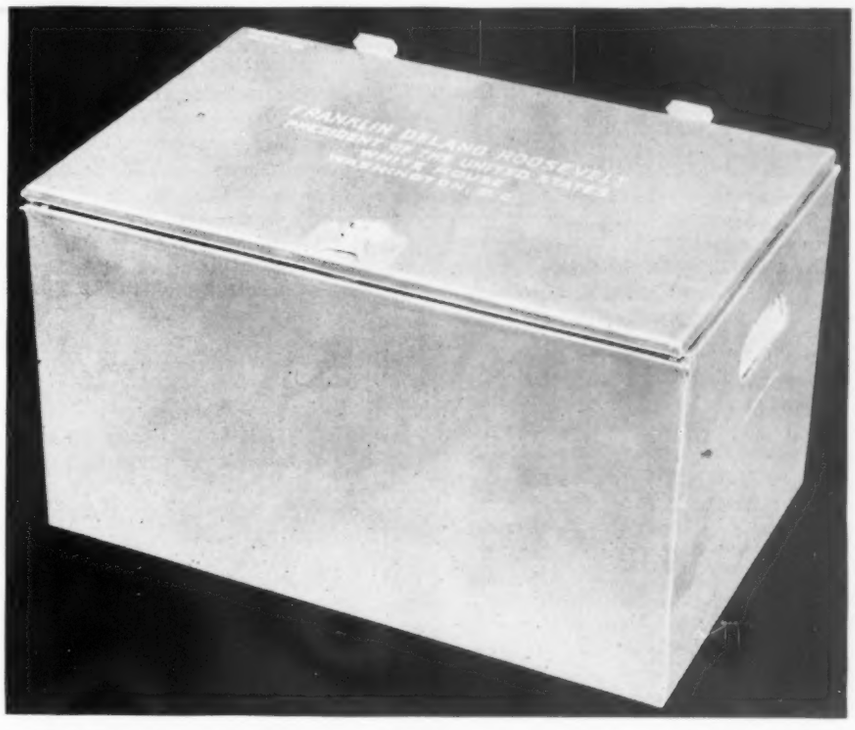
### Heavy Exports from New York

A number of these vessels, it may be added, are around Staten Island, and have not yet been touched, which is interesting in view of the substantial movement out of New York and which explains in a measure the shortage of structural scrap that has developed at that point. Last year this time, or possibly a little later, much of this structural scrap was going to Buffalo. This year few shipments to this point are under early consideration.

Of the 200,000 tons of scrap or-

## Scrap $16, Freight $178

*A PITTSBURGH iron and steel scrap broker wrote two checks last week covering a shipment from New England. One was for* $16, *for the scrap itself. The second was for* $178, *which was the railroad freight.*




*STEEL SPEEDS BEER TO THE WHITE HOUSE: First beer case fabricated from Allegheny metal is engraved with President Roosevelt's name, then dispatched—loaded—by the Independent Brewing Co., Pittsburgh, by airplane at* 12:01 *a.m., April 7*

dered for shipment abroad since Jan. 1, Japan is said to have placed more than 100,000 tons, Italy 60,000 tons and Poland 25,000 tons. Germany, for the first time in many months, recently came in for a sizeable tonnage, taking 6000 tons of nickel steel scrap out of Philadelphia, paying $12, f.a.s.

Practically all, if not all, of the scrap Japan has bought along the Atlantic seaboard has been No. 1 steel, whereas her purchases along the Pacific Coast have included No. 2 and automobile scrap. That Japan has confined her Atlantic Coast purchases to No. 1 melting steel may be explained in part by the competition she would encounter with Europe on the cheaper grades. Italy's requirements have been for No. 2 scrap, and while Poland has been taking some No. 1, most of her purchases have been for the former.

### Japan the Leading Buyer

Japan has been by far the largest buyer of iron and steel scrap over the past few years. As shown in the accompanying table she started to import from this country in particularly large volume in 1927, when she took 71,087 gross tons. The following year she took 160,427, then in 1929 a total of 208,260. While that year marked the peak, Japan, nevertheless, imported 168,186 gross tons in 1930, and although taking but 48,036 the following year, imported 164,001, in 1932, and 56,615 during the first two months of this year—22,614 in January and 34,001 in February—with official returns not yet available for March.

Japan's importation of 164,001 tons scrap comprised the bulk of her iron and steel importations from this country in 1932 the latter totaling 195,020 tons.

Japan surpassed Canada as the leading scrap buyer from this country in 1929, and although taking less than Canada in 1931, far more than made up for this in the months which have followed. Canada, a large buyer for many years, imported possibly her heaviest tonnage from the United States in 1928—178,528 gross tons. The next year, as shown in the table she imported 111,849 tons; in 1930, 103,643 tons; in 1931, 68,210 tons; in 1932, 45,145 tons; and so far this year a relatively small amount.

Italy, second largest buyer at this time, imported her heaviest tonnage from this country in 1929, a total of 92,377 tons. Her importations then declined sharply—32,434 in 1930, 2176 in 1931 and 6,678 in 1932. During the first two months of this year, however, she has taken 11,131 tons, more than in the two preceding years combined, and with orders placed in this country since the first of the year for 60,000 tons a sharp upswing is assured.

That Japan and Italy are heavy buyers follows naturally, for of the leading world powers these countries, perhaps, suffer most from lack of raw materials of iron. It took only the pinch of civil wars in China, from where she had been receiving the bulk of her iron ore, to send Japan scurrying into the world markets for large quantities of scrap.

### Movement from U. S. Triples

In 1927 Japan's imports of scrap from all parts of the world almost tripled, to 226,391 gross tons. That year Japan's shipments from the United States more than tripled, amounting to 71,087 gross tons. By 1929 she had more than doubled her 1927 imports, taking 492,555 gross tons of which 208,260, it may be recalled, came from the United States.

Japan has augmented her meager domestic supplies by the development of purchase-controlled ore mines in the Malay States and by extending her control in Manchuria. However, her costs for making pig iron are high, a situation abetted by lack of good coking coal, so that continued good demand for scrap has been born of economy necessity.

To augment light domestic ore reserves, Italy draws chiefly for iron ore from Russia, Greece and the Island of Elba, and, to a lesser extent, from Spain, and bids for scrap in many parts of the world. In January, 1933, for instance she drew scrap from more than 15 different countries, and during the past two years her purchases from this country were but the proverbial drop in the bucket, compared with her total purchases elsewhere.

That Italy is again turning to this country for a heavier proportion of her scrap reflects a clarification of a misunderstanding over specifications, it is said. Incidentally, of Italy's January imports of scrap, possibly a fifth came from the United States.

### Export Group Being Formed

Poland and, in a somewhat lesser degree, Germany and Belgium also have meager domestic supplies, and the activities of these countries, along with Japan and Italy and others, in covering their needs serve to emphasize the truly international character of scrap as a commodity; that an export group is now being formed in this country to operate under the Webb-Pomerene law, as recently announced in STEEL, appears logical.

Japan's largest shipments have been from New York. Of the 20,000 tons of scrap to have left New York each month since Jan. 1, it is estimated that she took an average of 12,000 tons.

Japan took 6000 tons of railroad scrap out of Jacksonville, Fla., Seaboard Air Line material, and has taken at least 7000 tons from the Canadian National, to name some of the more outstanding cases.

While this has a firming tendency on the market, it has not resulted in any sharp increase in prices to date. For one reason, competition among sellers for this business has been severe at certain points. In some cases the buyer has had little more to do than to sit aside and let

(*Please turn to Page 41*)

## Postwar Exports of Scrap Reach Peak in 1929, but Recover Stride in 1932

(In Gross Tons)

| | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 | 1931 | 1932 | (2 months) 1933 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | ..... | ..... | ..... | ..... | 12 | 243 | 695 | 787 | 1 005 | 601 | 211 |
| France | 25 | 45 | ..... | ..... | ..... | 1,648 | ..... | ..... | 12 | ..... | ..... |
| Germany | 20 | ..... | 2 | 385 | 9,367 | 18,984 | 20,304 | 6,783 | 2 | 134 | 17 |
| Italy | ..... | 17,051 | 31,626 | 12,147 | 30,185 | 73,348 | 92,377 | 32,434 | 2,176 | 6,678 | 11,131 |
| Poland and Danzig | ..... | ..... | ..... | ..... | 14,858 | 63,274 | 75,031 | 5,056 | 2,550 | 4,350 | ..... |
| United Kingdom | 200 | 2,036 | 1,533 | 2,120 | 3,163 | 1,740 | 2,807 | 4,177 | 1,947 | 590 | 45 |
| Canada | 46,875 | 55,438 | 31,017 | 66,212 | 92,514 | 178,528 | 111,849 | 103,643 | 68,210 | 45,145 | 1,152 |
| Mexico | 30 | 405 | 261 | 819 | 2,983 | 4,711 | 7,547 | 10,280 | 3,477 | 168 | 192 |
| Argentina | ..... | ..... | 5 | ..... | ..... | 410 | 224 | 1 | 1 | ..... | ..... |
| China | 7,333 | 13,206 | 5,627 | 3,824 | 4,017 | 9,222 | 8,184 | 9,339 | 7,026 | 4,242 | 330 |
| Hong Kong | 1,630 | 1,273 | 1,035 | 194 | 724 | 1,022 | 630 | 810 | 980 | 629 | 31 |
| Japan | 8,670 | 6,920 | 8,066 | 18,868 | 71,087 | 160,427 | 208,260 | 168,186 | 48,036 | 164,001 | 56,615 |
| Kwantung | 100 | 20 | ..... | 25 | 9 | 1,110 | 2,543 | 2,004 | 22 | ..... | ..... |
| Philippine Islands | ..... | 18 | 108 | 73 | 429 | 925 | 916 | 313 | ..... | 168 | ..... |
| Netherlands | ..... | ..... | ..... | ..... | 9,402 | 93 | 208 | 787 | 313 | 192 | 2 |
| Spain | ..... | ..... | 3,194 | ..... | ..... | ..... | 14,922 | 10,216 | ..... | ..... | ..... |
| Other Countries | 1,097 | 1,336 | 99 | 71 | 409 | 454 | 10,844 | 3,833 | 368 | 564 | 218 |
| Total | 65,980 | 97,748 | 82,573 | 104,738 | 239,159 | 516,139 | 557,044 | 358,649 | 136,125 | 227,522 | 69,944 |

*DETROIT*

AUTOMOBILE production, expanding for the fourth consecutive week, has regained its January stride and recovered the ground lost since the Briggs strike became the first of a series of interruptions.

April, therefore, appears a much stronger month than it did at the outset. Chevrolet, Ford, Plymouth, Pontiac, Dodge and Hudson-Essex alone have scheduled close to 110,000 units, a total practically twice the entire industry in March and slightly greater than February.

If other manufacturers do comparably well, April production should not fall far short of the 130,114 units assembled in January, sustaining the judgment expressed after the bank holiday ended that the market would snap back fast.

This improvement, which endows April with the best retail sales hopes since the January shows, touches the medium and high-price cars lightly and the low-price ones heaviest. April schedules generally are based upon solid sales or expectations, reducing speculative output to a minimum.

### Heavier Releases Issued

While production has been expanding since the week ended March 18, material and parts makers have not benefited to the fullest because automobile manufacturers have been evening up inventories and taking in material that was in process when holdups were broadcast.

From now on, however, improved assembling should be reflected directly in broader releases for materials and parts. Releases issued last week were the heaviest since the middle of January.

Chevrolet continues the leader. Its program for April has been a shifting one, but the shifts have been entirely on the up side, and from a tentative 35,000 units its program has expanded to 45,000 to 50,000. Most departments are now on a 5-day week.

Despite the hazards of the banking holiday, Chevrolet assembled about 35,000 units in March, and its retail sales for the period Jan. 1-March 20 are announced as 88,068 units, compared with 86,769 in 1932.

By the close of last week Ford was close to crossing 2000 units daily, and the present schedule for April is an average of 2100 units a day, or 42,000 for the 20 working days of this month.

### Await Low-Price Ford

A number of furloughed workmen and officials have been returned at Fordson, and the best material releases in a number of weeks have been issued. More vigor is displayed in shaping up the low-price lines yet to be announced, and material for quantity production should be bought shortly. Reflecting the diversion of stamping business to outside manufacturers, Ford is selling over 100 presses.

Plymouth has begun deliveries on its new deluxe series. Mechanically there is practically no change from the models brought out last November, but the new chassis is 112 inches long, which is an increase of 4 inches; the rake of the radiator is less pronounced, which imparts a longer and sleeker look to the hood and gives the new series a longer topline; refinements have been made in the interior trim.

The deluxe series practically duplicates the models of the so-called standard series, the sedan being priced $30 higher than the standard one. This month Plymouth will assemble upward of 10,000 units, Briggs being reported to have a body release of 500 a day.

Next to Plymouth, Dodge is the most active of the Chrysler lines, both the six and eight going over big, considering the times. DeSoto deliveries in the week ended April 1 are reported as 1296, a gain of 20 per cent over the preceding week and the largest total for any week in 9 months.

Next to Chevrolet, Pontiac is going best of the General Motors lines, its April program being the largest this year. Pontiac is crowding Olds, which for several years has been General Motors' flashiest entry in the field just above the low-priced one, and is adding to the Knudsen legend.

It is indicative of the comparative popularity of the lower-price cars that so many Cadillac-LaSalle dealers are taking on the sale of Oldsmobile, while a great number of Buick and Pontiac hookups have been made, there being over 900 of the latter. Separate sales forces are maintained for each car in such combinations.

Hudson-Essex last week operated its assembly line 4 days, and most departments worked 4 to 5½ days. Production was about 750 units, which was almost twice the low of the banking holiday. Assemblies 5 days this week are probable. Retail sales in the week ended April 1 were an increase of 35 per cent over the preceding week, and an April output of 5000 to 6000 cars is indicated.

### Next Price Move To Be Up

Talk of higher prices is a natural concomitant of rising production. Undoubtedly the next movement in f.o.b. prices will be upward, but as yet there are no definite indications. It seems probable that the first reflection of this situation will be in used car valuations.

As buying interest broadens and dealers have more appraisals to make they will tend to become more conservative and will choose those "deals" which offer the most cash or the most favorable tradein. In this manner, the dealer will obtain more for new cars and the buyer will pay more, without a published advance in base prices.

The automotive industry is under

*(Please turn to Page 45)*

# Ohio Leads in Pig Iron Production in 1932

PRODUCTION OF PIG IRON BY GRADES AND FERRO-ALLOYS BY KINDS, SHOWING DECREASE, 1931–1932, GROSS TONS

| | 1932 | Per cent | 1931 | Per cent | Decrease | Per cent |
|---|---|---|---|---|---|---|
| Pig iron: | | | | | | |
| Basic | 5,074,427 | 59.35 | 10,174,447 | 56.66 | 5,100,020 | 50.13 |
| Bessemer and low-phosphorus | 2,220,468 | 25.97 | 4,635,648 | 25.81 | 2,415,180 | 52.10 |
| Foundry | 811,484 | 9.49 | 2,133,939 | 11.88 | 1,322,455 | 61.97 |
| Malleable | 419,723 | 4.91 | 945,664 | 5.27 | 525,941 | 55.62 |
| Forge | 1,558 | .02 | 36,482 | .20 | 34,924 | 95.73 |
| All other pig iron | 22,004 | .26 | 31,599 | .18 | 9,595 | 30.36 |
| Total pig iron | 8,549,664 | 100.00 | 17,957,779 | 100.00 | 9,408,115 | 52.39 |
| Ferro-alloys: | | | | | | |
| Ferro-manganese, Spiegeleisen | 93,644 | 40.40 | 234,808 | 50.11 | 141,164 | 60.12 |
| Ferro-silicon | 124,708 | 53.80 | 211,284 | 45.09 | 86,576 | 40.98 |
| All other ferro-alloys | 13,437 | 5.80 | 22,483 | 4.80 | 9,046 | 40.23 |
| Total ferro-alloys | 231,789 | 100.00 | 468,575 | 100.00 | 236,786 | 50.53 |
| Grand total | 8,781,453 | ..... | 18,426,354 | ..... | 9,644,901 | 52.34 |

PRODUCTION OF PIG IRON AND FERRO-ALLOYS BY STATES, SHOWING DECREASE, 1931-1932, GROSS TONS

| States | 1932 | Per cent | 1931 | Per cent | Decrease | Per cent |
|---|---|---|---|---|---|---|
| Pig iron: | | | | | | |
| Pennsylvania | 2,103,180 | 24.60 | 5,037,672 | 28.05 | 2,934,492 | 58.25 |
| Ohio | 2,387,028 | 27.92 | 4,120,610 | 22.95 | 1,733,582 | 42.07 |
| Indiana, Michigan | 1,034,801 | 12.10 | 2,327,839 | 12.96 | 1,293,038 | 55.55 |
| Illinois | 919,280 | 10.75 | 1,964,735 | 10.94 | 1,045,455 | 53.21 |
| Alabama | 652,898 | 7.64 | 1,640,851 | 9.14 | 987,953 | 60.21 |
| Mass., New York | 624,141 | 7.30 | 1,149,677 | 6.40 | 525,536 | 45.71 |
| Maryland, Virginia, West Va., Ky., Tenn. | 680,774 | 7.96 | 1,419,987 | 7.91 | 739,213 | 52.06 |
| Minn., Ia., Colo., Utah. | 147,562 | 1.73 | 296,408 | 1.65 | 148,846 | 50.22 |
| Total pig iron | 8,549,664 | 100.00 | 17,957,779 | 100.00 | 9,408,115 | 52.39 |
| Ferro-alloys: | | | | | | |
| Pennsylvania | 85,194 | 36.75 | 195,552 | 41.73 | 110,358 | 56.43 |
| New York, New Jersey | 85,875 | 37.05 | 125,597 | 26.81 | 39,722 | 31.63 |
| Ohio, Ill., Ia, Colo | 41,510 | 17.91 | 89,352 | 19.07 | 47,842 | 53.54 |
| Md., Va., W. Va., Ala., Tenn. | 19,210 | 8.29 | 58,074 | 12.39 | 38,864 | 66.92 |
| Total ferro-alloys | 231,789 | 100.00 | 468,575 | 100.00 | 236,786 | 50.53 |
| Grand total | 8,781,453 | ..... | 18,426,354 | ..... | 9,644,901 | 52.34 |
| Pig iron | 8,549,664 | 97.36 | 17,957,779 | 97.46 | 9,408,115 | 52.39 |
| Ferro-alloys | 231,789 | 2.64 | 468,575 | 2.54 | 236,786 | 50.53 |

PIG IRON AND FERRO-ALLOYS MADE FOR SALE OR FOR USE OF MAKERS IN 1932, GROSS TONS

| Pig iron and ferro-alloys | For sale | For maker's use | Total |
|---|---|---|---|
| Pig iron: | | | |
| Basic | 445,007 | 4,629,420 | 5,074,427 |
| Bessemer and low-phosphorus | 80,657 | 2,139,811 | 2,220,468 |
| Foundry | 779,684 | 31,800 | 811,484 |
| Malleable | 391,722 | 28,001 | 419,723 |
| Forge or mill | 1,558 | ..... | 1,558 |
| White and mottled, direct castings, etc. | 14,918 | 7,086 | 22,004 |
| Total pig iron | 1,713,546 | 6,836,118 | 8,549,664 |
| Ferro-alloys: | | | |
| Ferro-manganese and spiegeleisen | 30,664 | 62,980 | 93,644 |
| Ferro-silicon | 119,701 | 5,007 | 124,708 |
| All other ferro-alloys | 13,437 | ..... | 13,437 |
| Total ferro-alloys | 163,802 | 67,987 | 231,789 |
| Total pig iron and ferro-alloys | 1,877,348 | 6,904,105 | 8,781,453 |

OHIO wrested the palm in pig iron production from Pennsylvania in 1932, with 27.92 per cent of the total, compared with 24.60 per cent for Pennsylvania, according to figures compiled by the American Iron and Steel institute. In 1931 Pennsylvania accounted for 28.05 per cent and Ohio for 22.95 per cent of the total production. Other producing areas retained their relative standing.

Depth of the depression in pig iron production is indicated by the fact that not since 1896 has so small a tonnage been produced, gains of 36 years being wiped out. Output of three years previous to 1896 was larger than in 1932. In 1890, 1892 and 1895 more than 9,000,000 tons were made, compared with 8,781,453 tons in 1932.

Compared with 1931 the loss in tonnage was 52.34 per cent, the decline being from 18,426,354 tons in 1931 to 8,781,453 tons in 1932. The loss in 1931 from 1930 was 41.97 per cent and in 1930 from the all-time peak of 1929 the decline was 25.49 per cent.

Dividing the output into merchant and nonmerchant iron, it is found the former constituted 27.18 per cent, compared with 23.5 per cent in 1931 and 22.3 per cent in 1930. Second half of the year showed a marked loss in production from first half. Furnaces in blast June 30 numbered 46 and Dec. 31 only 41. First-half production was 5,081,388 tons and second-half 3,468,276 tons. Charcoal pig iron contributed 15,055 tons to the annual total, 14,783 tons of which was made in the first six months.

Delivery of pig iron in 1932 showed the rapid disappearance of sand-cast iron, which included only 88,541 tons, compared with 3,013,736 tons of machine cast, 76,272 tons of chill cast and 6205 tons in direct castings.

Ferroalloy production followed a close parallel to the remaining grades of pig iron, the decline from 1931 being at practically the same percentage.

## Re-Schedule Conference

Conference on "Re-Engineering for Economical Manufacture," originally scheduled to be held at Case School of Applied Science, Cleveland, March 22-24 (STEEL, Feb. 27, p. 40), and later postponed due to the banking emergency (STEEL, March 13, p. 17), has been definitely rescheduled for May 10-12. Program and speakers will be as announced originally.

# Reduced March Ingot Rate Exceeds 1932 Midsummer Low

IN SPITE of untoward business conditions due to the banking situation and general paralysis of business a large part of March, production of steel ingots, while dropping sharply from February, did not reach the lows of last July, August and December.

Rate of ingot operation in March was 15.08 per cent of capacity, compared with 20.41 per cent in February, 1933, 15.00 per cent in December, 1932, and 14.61 and 14.20 per cent, respectively, in July and August, 1932. The daily rate was 32,812 tons, compared with 44,431 tons in February. This contrasts with 32,432 tons in December, 1932, and 31,602 tons and 30,712, respectively, in July and August, 1932, according to the American Iron and Steel institute.

Accompanying statistics for 1932 and 1933 have been revised and adjusted by the institute to include complete returns.

## March Pig Iron Down 11.5 Per Cent

COMPLETE and final figures show production of coke pig iron in the United States in March to have been 542,013 gross tons, or at an average daily rate of 17,484 tons. Of the country's 291 potential blast furnaces only 38 were making iron on March 31. Thus, the estimates presented last week (STEEL, April 3, page 12) proved remarkably accurate.

The daily rate was the lowest since August of last year with 17,035 tons, the all-time low point. As compared with the 19,752 tons in February, the March figure of 17,484 tons was a drop of 2268 tons, or 11.5 per cent.

Total production of 542,013 tons in March declined 11,054 tons, or 2.0 per cent, from the 553,067 tons in the preceding month. This was despite the fact that March was a three-day longer month than February.

Relating production to capacity, operations in March were 12.3 per cent, against 14.0 per cent in February, 13.0 per cent in January, 12.0 per cent last August, and 22.0 per cent in March, 1932.

The total of 38 blast furnaces active on March 31 was the lowest on record, the previous bottom being 41 last August. Furnaces active on Feb. 28 totaled 44 and 45 on Jan. 31. During March, 2 nonmerchant or steelworks stacks resumed and 8 were blown out or banked. No merchant furnaces were blown in or blown out.

Furnaces resuming in March were: In Pennsylvania: Bethlehem G, Bethlehem Steel Co.; one Monessen, Pittsburgh Steel Co.

Furnaces blown out or banked were: In Ohio: Warren, Republic Steel Corp.; Mingo No. 4, Carnegie Steel Co.; one River, Corrigan-McKinney Steel Co. In Pennsylvania: One Carrie, Carnegie Steel Co.; Bethlehem F and Cambria H, Bethlehem Steel Co. In Indiana: Indiana Harbor No. 2, Youngstown Sheet & Tube Co.; Madeline No. 2, Inland Steel Co.

**MARCH IRON PRODUCTION**

| | No. in blast last day of month Mar. | Feb. | Total tonnage Merchant | Nonmerchant |
|---|---|---|---|---|
| Ohio | 11 | 14 | 18,006 | 163,256 |
| Penna. | 13 | 14 | 23,394* | 123,869* |
| Alabama | 2 | 2 | 10,535 | 17,248 |
| Illinois | 3 | 3 | 21,532 | 23,560 |
| New York | 1 | 1 | ..... | 15,294 |
| Colorado | 1 | 1 | | |
| Indiana | 2 | 4 | 2,756 | 91,081 |
| Maryland | 2 | 2 | | |
| Virginia | 0 | 0 | | |
| Kentucky | 0 | 0 | | |
| Mass. | 0 | 0 | | |
| Tennessee | 0 | 0 | | |
| Utah | 1 | 1 | ..... | 31,482 |
| West Va. | 1 | 1 | | |
| Michigan | 1 | 1 | | |
| Minnesota | 0 | 0 | | |
| Missouri | 0 | 0 | | |
| | 38 | 44 | 76,223* | 465,790* |

*Includes ferromanganese.

**AVERAGE DAILY PRODUCTION**

| | 1933 | 1932 | 1931 | 1930 |
|---|---|---|---|---|
| Jan. | 18,348 | 31,336 | 55,337 | 91,573 |
| Feb. | 19,752 | 33,122 | 61,114 | 101,640 |
| Mar. | 17,484 | 31,194 | 65,448 | 104,930 |
| Apr. | ..... | 28,524 | 66,986 | 106,371 |
| May | ..... | 25,282 | 64,355 | 104,564 |
| June | ..... | 20,867 | 54,599 | 97,817 |
| July | ..... | 18,394 | 47,170 | 85,110 |
| Aug. | ..... | 17,035 | 41,264 | 81,455 |
| Sept. | ..... | 19,788 | 38,947 | 75,893 |
| Oct. | ..... | 20,795 | 37,831 | 69,851 |
| Nov. | ..... | 20,858 | 36,727 | 62,182 |
| Dec. | ..... | 17,650 | 31,625 | 53,732 |
| Av. | 18,487 | 23,699 | 50,035 | 86,141 |

**MONTHLY PIG IRON PRODUCTION**

| | 1933 | 1932 | 1931 |
|---|---|---|---|
| Jan. | 568,785 | 971,437 | 1,715,443 |
| Feb. | 553,067 | 960,550 | 1,711,192 |
| March | 542,013 | 967,015 | 2,028,906 |
| April | ..... | 855,734 | 2,009,582 |
| May | ..... | 783,769 | 1,995,001 |
| June | ..... | 626,015 | 1,637,998 |
| July | ..... | 570,222 | 1,462,270 |
| Aug. | ..... | 528,105 | 1,279,205 |
| Sept. | ..... | 593,640 | 1,168,436 |
| Oct. | ..... | 644,648 | 1,172,781 |
| Nov. | ..... | 625,753 | 1,101,820 |
| Dec. | ..... | 547,179 | 980,377 |
| Total | 1,663,865 | 8,674,067 | 18,263,011 |

**RATE OF OPERATION**
(Relation of Production to Capacity)

| | 1933[1] | 1932[1] | 1931[2] | 1930[3] |
|---|---|---|---|---|
| January | 13.0 | 22.1 | 38.4 | 65.0 |
| February | 14.0 | 23.4 | 42.5 | 72.1 |
| March | 12.3 | 22.0 | 45.4 | 74.5 |
| April | ..... | 20.2 | 46.5 | 75.4 |
| May | ..... | 17.9 | 44.7 | 74.2 |
| June | ..... | 14.7 | 37.9 | 69.3 |
| July | ..... | 13.0 | 32.7 | 60.3 |
| August | ..... | 12.0 | 28.7 | 57.8 |
| September | ..... | 14.0 | 27.0 | 53.8 |
| October | ..... | 14.7 | 26.3 | 49.6 |
| November | ..... | 14.7 | 25.5 | 44.1 |
| December | ..... | 12.5 | 22.0 | 38.1 |

[1]Based on capacity of 51,598,175 gross tons Dec. 31, 1931; [2]on capacity of 52,515,875 tons; [3]on capacity of 51,490,680 tons. Capacities by American Iron and Steel institute.

## Steel Ingot Production — 1932-33

**95.33 Per Cent of Industry Reporting**
**Gross Tons**

| 1932 | Open-hearth | Bessemer | Monthly output companies reporting | Calculated monthly output all companies | No. of working days | Approximate daily output all companies | Per cent operation |
|---|---|---|---|---|---|---|---|
| Jan. | 1,230,907 | 160,633 | 1,391,540 | 1,454,309 | 26 | 55,935 | 25.86 |
| Feb. | 1,230,970 | 157,067 | 1,388,037 | 1,450,648 | 25 | 58,026 | 26.83 |
| Mar. | 1,149,193 | 193,944 | 1,343,137 | 1,403,723 | 27 | 51,990 | 24.04 |
| 3 Mos. | 3,611,070 | 511,644 | 4,122,714 | 4,308,680 | 78 | 55,239 | 25.54 |
| Apr. | 1,036,163 | 144,197 | 1,180,360 | 1,233,603 | 26 | 47,446 | 21.94 |
| May | 950,838 | 103,593 | 1,054,431 | 1,101,994 | 26 | 42,384 | 19.60 |
| June | 755,068 | 100,249 | 855,317 | 893,899 | 26 | 34,381 | 15.90 |
| July | 653,039 | 102,916 | 755,955 | 790,055 | 25 | 31,602 | 14.61 |
| Aug. | 696,122 | 97,323 | 793,445 | 829,236 | 27 | 30,712 | 14.20 |
| Sept. | 804,470 | 124,970 | 929,440 | 971,365 | 26 | 37,360 | 17.28 |
| Oct. | 885,773 | 132,876 | 1,018,649 | 1,064,598 | 26 | 40,946 | 18.93 |
| Nov. | 838,419 | 128,844 | 967,263 | 1,010,894 | 26 | 38,881 | 17.98 |
| Dec. | 724,917 | 81,932 | 806,849 | 843,244 | 26 | 32,432 | 15.00 |
| Total | 10,955,879 | 1,528,544 | 12,484,423 | 13,047,568 | 312 | 41,819 | 19.34 |
| **97.88 Per Cent of Industry Reporting** | | | | | | | |
| Jan. | 879,082 | 109,000 | 988,082 | 1,009,483 | 26 | 38,826 | 17.84 |
| Feb. | 916,952 | 126,781 | 1,043,733 | 1,066,339 | 24 | 44,431 | 20.41 |
| Mar. | 772,623 | 94,509 | 867,132 | 885,913 | 27 | 32,812 | 15.08 |
| 3 Mos. | 2,568,657 | 330,290 | 2,898,947 | 2,961,735 | 77 | 38,464 | 17.67 |

Figures exclude crucible and electric ingots. Operating percentages are based on 67,473,630 tons annual capacity as of Dec. 31, 1931.

## Steel Corporation Improves 18-8

DEVELOPMENT of a method of stabilization of 18-8 chrome-nickel stainless steels with titanium addition has been announced formally by subsidiary companies of the United States Steel Corp.

According to the announcement, a distinctive contribution to the art of metallurgy is involved in this development which effectively removes for the first time the hazard of intergranular corrosion, a phenomenon which heretofore has been a serious factor in installations where heat treatment is impracticable after welding and in cases where these steels are used in applications involving high temperatures.

The process and methods of heat treatment used in the production of the new stabilized 18-8 are covered by patent applications now pending on behalf of the subsidiary companies of the corporation. This improved product will be marketed as USS Stabilized 18-8 and is now available in all stainless steel products manufactured by subsidiary companies.

## Business News Of Washington

AN INVESTIGATION has been ordered by the interstate commerce commission "of the existing freight rates and charges to determine whether and to what extent, if any, general reductions should be made."

The commission has also decided that its investigation should not be confined to any particular commodities or descriptions of freight traffic.

The question of the reduction of freight rates at this time came before the commission through the filing of a petition by the National Coal association, the National Lumber Manufacturers association and several other organizations.

These associations requested "the institution of a general investigation into existing freight rates and charges on so-called basic commodities with the view of requiring the carriers to make reductions in such rates and charges."

Oral argument was held before the commission as to whether or not the investigation should be made.

The same associations have asked the interstate commerce commission, which the President, incidentally, states will remain an independent organization, to reopen the railroad freight rate surcharges, which the commission has just extended for six months from March 31.

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"I shall ask the congress," said President Roosevelt last week, "for legislation enabling us to initiate practical reciprocal tariff agreements to break through trade barriers and establish foreign markets for farm and industrial products." This statement of the President's is in line with what he said during the campaign.

Asked if the reciprocal provisions would follow the Dingley tariff bill, the President said that he did not know at this time as definite plans have not yet been worked out.

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Tariff commission April 5 reduced duties on hay, manure and agricultural forks, hoes and rakes effective May. 3, but retained present duties on shovels, spades, scoops, drainage tools, scythes, sickles, grass hooks and knives.

## Steel Is Aghast At 30-Hour Week

STEELMAKERS view the Black bill, passed by the senate at Washington, April 6, setting up a 30-hour work week for industry, as the most radical and revolutionary measure ever proposed affecting their industry.

The immediate effect would be felt most severely in departments employing skilled labor. The number of employes would have to be increased, and costs would rise. It is felt that labor would be dissatisfied with a 30-hour week at current wage rates.

Common labor in the steel industry now is paid 30 to 40 cents an hour, a 30-hour week thus making weekly payments $9 to $12. Demands for fatter pay envelopes would breed serious labor troubles, it is felt.

The Black bill would bar from interstate commerce any product made in a plant operating more than 5 days a week, 6 hours a day, the object being to spread work and create 6,000,000 jobs. President Roosevelt has taken no stand on it.

## Died:

J W. WALKER, 90, chairman, Pittsburgh Construction Co., Pittsburgh, and founder of the Shiffler Bridge Co., at Valley Forge, Pa., April 1. He was employed in the engineering department of the Pennsylvania railroad under Andrew Carnegie, became resident engineer at Pittsburgh for the Keystone Bridge Co., and in 1883 founded the Shiffler company. When the American Bridge Co. purchased it, Mr. Walker remained as general manager. He was also chairman of the Duquesne Slag Products Co., Pittsburgh, and was interested in the Concrete Products Co. of America.

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John McCann, president, United Iron & Metal Co., Pittsburgh, April 6.

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Carl W. Finger, 75, chief engineer, Vulcan Iron Works, Wilkes-Barre, Pa., April 3.

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Frank P. Ryder, 43, treasurer, S. M. Ryder & Son Machinery Mfg. Co., Niagara Falls, N. Y., March 31.

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H. C. Brewster, 64, president and owner, the Brewster Co., Shreveport, La., manufacturer of oil field equipment, March 23.

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A. W. Hopkins, 49, former sales manager, National Acme Co., Cleveland, April 4. Four years ago he became associated with the Allied Products Co., after a 30-year connection with National Acme.

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Fred G. Porter, 54, president and general manager, Globe Brick Co., refractories, East Liverpool, O., at Kennelworth, W. Va., April 4. Mr. Porter was a lifelong resident of Hancock county, West Virginia, and a prominent Mason.

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Frederick W. Parsons, 65, vice president, Ingersoll-Rand Co., April 1 at his home, Corning, N. Y. Mr. Parsons introduced several important changes in air compressors, resulting in extensive advancement in construction work.

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George H. Gibby, 71, treasurer, New England Foundrymen's association and long connected with the Gibby Foundry Co., East Boston, Mass., at Winthrop, Mass., March 31. He was president of the East Boston Savings bank and a director of the First National Bank of Boston.

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Walter S. Lippincott, 51, long affiliated with the Philadelphia sales offices of the Bethlehem Steel Co., and well-known in the local trade, April 5. Born in Norristown, Pa., Aug. 28, 1882, he had been associated with the Philadelphia offices approximately 26 years. He specialized in pig iron.

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Dr. E. G. Brazier, president, William A. Box Iron Works Co., Denver, April 3. Going to Denver from Dallas, Tex., in 1927 to assume the presidency of the First National Life Insurance Co., he gave up that office in 1932 to head the Box concern. He was a native of Stratford, Ont., and a graduate of McGill university.

# Industrial Men in Day's News

HARRY J. FISHER, until recently sales manager of the Aetna-Standard Engineering Co., Youngstown, O., and who prior to that handled sales of Reliance motors in steel mills and general industrial plants, has become distributor in Ohio for the Clark Controller Co., Cleveland. His headquarters are in Cleveland.

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J. E. Wetzel, general sales manager, has been elected vice president of the Superior Steel Corp., Pittsburgh. He has been general manager of sales since 1930, and is to continue in charge of that division. His affiliation with the Superior Steel Corp. dates back over the past 18 years, and before going to Pittsburgh he was assistant manager of sales in the eastern territory, with headquarters at Philadelphia.

Other officers of Superior were re-elected recently, including: Frank R. Frost, president; P. C. Jennings, treasurer; C. D. Claney, secretary and assistant treasurer; and D. M. Liddel, assistant secretary.

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Howard K. Rigdon and Howard McClelland, formerly with the Republic Steel Corp., Youngstown, O., have been named sales representatives for the Great Lakes district by Hiram Swank's Sons Inc., Van Dyke Silica Brick Co. and the Bessemer Brick Co., all of Johnstown, Pa. They will have their headquarters in the Guarantee Title & Trust building, Cleveland.

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Thomas J. Jamison, superintendent in the open-hearth department of the Homestead steelworks division of Carnegie Steel Co., has retired. He began in the Homestead mill when it was built in 1879, and was the oldest in years of service in that division, having served under every general superintendent at the Homestead works.

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William Wigham Jr. has been appointed superintendent of the mechanical and electrical department of the steelworks and by-product plant at Clairton, Pa., of the Carnegie Steel Co. He is the son of the late William Wigham, who was a vice president of the Carnegie Steel Co.

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Joseph Dilworth, secretary and assistant treasurer, Dilworth-Porter Co. Inc., Pittsburgh, a division of Republic Steel Corp., Youngstown, O., and secretary of the Witherow Steel Co., Pittsburgh, has been appointed assistant to F. A. Merrick, president of Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Mr. Dilworth is also president of the Heating & Refrigerating Co., Pittsburgh, and a director of the Clyde Coal Co., New York.

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H. D. North, who for the past 25 years was associated with the late Thomas Ferry, former president of the Ferry Cap & Set Screw Co., Cleveland, was elected president at a meeting of the board of directors of that company, April 3.

The Ferry company was the pioneer in the field of upsetting cap and set screws under Mr. Ferry's patented process, and Mr. North, on leaving Cornell university in 1907, began his bnsiness career with the company soon after its formation. He later became vice president and sales manager, and was the first to introduce and sell upset head cap and set screws to the industry. Mr. North is well known throughout the automotive industry as well as the mill supply and hardware jobbing trade.

H. D. North

At the same meeting, E. W. Ferry, son of Thomas Ferry, and a graduate of Case School of Applied Science, was elected vice president and secretary. Mr. Ferry is in charge of cost, production and plant operations, and has been connected with this company a number of years.

George M. North, one of the founders, is treasurer of the company.

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T. W. Sill has resigned as vice president of the Nitralloy Corp., New York.

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James Inglis, president of the American Blower Co., Detroit, is chairman of the board of the National Bank of Detroit, recently organized to adjust the banking situation in Detroit.

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F. D. Foote, vice president, Pittsburgh Forgings Co., Pittsburgh, is now assistant in charge of co-ordinating railroad sales for the United States Steel Corp., under C. L. Wood, vice president.

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Tom Jackson, sales representative in the Texas Gulf coast region for Petroleum Equipment Co., Fort Worth, Tex., has opened office and warehouse facilities at 3205 Harrisburg boulevard, Houston, Tex.

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R. C. Denny, formerly with the Combustion Engine Corp., New York, and the M. H. Dietrick Co., Chicago, has been appointed chief engineer of the stoker division of the Patterson Foundry & Machine Co., East Liverpool, O.

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Roy C. Muir, assistant to the late Charles E. Eveleth, vice president, General Electric Co., Schenectady, N. Y., has been appointed manager of the engineering department of the company. He has been with General Electric 28 years, going direct from the University of Wisconsin to the student engineering course.

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H. L. Dempster, eldest son of the late C. B. Dempster, has been elected president and general manager of the Dempster Mill Mfg. Co., Beatrice, Nebr. The elder Mr. Dempster, who was 80, died March 23.

Clyde B. Dempster has been made vice president, and J. C. Harmon a director. R. H. Barger is secretary.

## More Licenses Granted for Steckel Mill Operation

Inland Steel Co., Chicago, has been licensed by the Cold Metal Process Co., Youngstown, O. to operate a complete line of Steckel mills and has placed an order for a 42-inch cold mill of this type for installation in its strip department at Indiana Harbor, Ind. Plans for converting a 72-inch cold mill to a Steckel-type unit for the production of wide strip also are being considered by Inland officials.

Universal Steel Co., Bridgeville, Pa., now is installing a Steckel cold mill for rolling stainless iron and steel, special alloy and high-carbon strip steel up to 20 inches wide.

Krupp Works, Essen, Germany, has made an arrangement with the Cold Metal Process Co. under which it will have the exclusive right to manufacture Steckel-type mills in Europe.

# EDITORIAL

## Federal Aid for Business Assuming New Form

FOR several years the government has been attempting by means of various palliatives to ease the economic strain of the depression upon finance and business. Federal remedies have been employed to a far greater extent during the present slump than in any previous similar period in the nation's history.

Until now most of the remedial activity has been dictated by the belief that the wheels of business can be pushed off of dead center through federal aid in regard to finance and credit. It was hoped that by pouring government funds into certain railroads, banks and other institutions, they would be strengthened and that the benefits gradually would spread throughout the intricate economic system of the country until they reached and helped individuals and small companies.

Events of the past six months have proved that the intended relief from palliatives poured into the top has not penetrated to the bottom. Benefits derived from the Reconstruction Finance Corp. and many other agencies were more limited than expected. These measures helped some institutions and perhaps harmed others. Certainly they failed to provide the widely diffused assistance that was desired and required.

### Government Activity Is Tending Toward Direct, Rather Than Indirect Measures

Today we're on the threshold of a new phase of government assistance. From now on more and more of the emphasis in federal relief will be placed upon efforts to apply palliatives at the sources of trouble, rather than to apply them at the top with the hope their effects will trickle down through devious channels to the points where assistance is needed most urgently. Direct, rather than indirect, measures seem to be favored at this time.

Lifting the ban on beer, which became effective in 19 states last Friday probably cannot be termed a palliative in intent, but it serves that purpose in effect. Many small companies and individuals who failed to sense any direct benefits from the activities of the Reconstruction Finance Corp., are able to see results of legalized beer in the visible and tangible terms of orders for equipment and supplies and of hours of employment. Steelmakers, fabricators, foundries, forge shops, equipment builders, etc., can point to actual orders on their books directly traceable to beer.

It is true that the activity to be derived from resumption of brewing and distribution of beer has been exaggerated in many quarters. Nevertheless, renewed traffic in this beverage is contributing in a modest way to the recovery of business, and therefore it may be counted as one of the first effective palliatives arising from government action.

The farm bill, now in the offing, is another attempt to deal out relief in a direct fashion. Nobody seems to know exactly how it will work, but it is hoped by its sponsors that it will raise the prices of basic agricultural products to domestic consumers. It is the most direct approach to the farm problem that has been attempted to date.

### Objectives Remain Unchanged, but Working of Plans Will Be Visible to Laymen

Of equal directness in its approach is the plan for placing a quarter million of jobless men at work on reforestation projects. This is a simple "make-work" palliative and its primary objective is to provide useful employment. However, if the plan works out as contemplated, it will take a definite number of men off the hands of local charity, will give them employment, and—again—it will be accomplishing in small measure by direct means one of the objectives which it was hoped would be effected indirectly through the Reconstruction Finance Corp.

A rather drastic shake-up in the alignment and operation of railroad properties is in prospect. Here again is the principle of direct action. The intent is to cut red tape, revamp organization and simplify operations in the hope that such efforts will succeed whereas pouring money into the top not only failed to effect a cure but actually prolonged the agony.

In some cases it is doubtful whether direct action will be any more effective than the indirect methods previously employed. However the new approach has one great advantage. Direct activity is more apparent to the average individual. He can see the direct plan at work.

Most of the projected plans for federal relief are just as artificial as those tried during the past two years. The principal difference is in method of approach. Today, just as was the case a year ago, the government still is pumping oxygen into the patient until it is strong enough to stand on its own legs.

# THE BUSINESS TREND

## Business Climbs Slowly from Low Point of March

INDUSTRY still is in the process of painfully retrieving the ground lost during the banking holiday. Production figures for March, now becoming available, reveal the extent to which the acute financial difficulties throttled industrial activity.

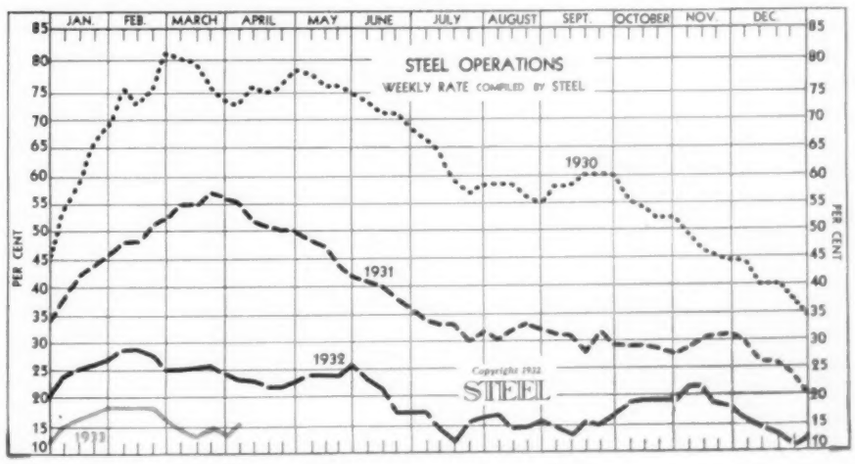
In March the average daily output of coke pig iron dropped to 17.484 tons. This is the second lowest figure on record, the lowest being 17,035 tons, established in August, 1932. The average daily output of steel ingots in March was 32.812 tons, compared with a low of 30,830 tons last August.

However, the weekly figures show that a slight upward trend has been developing since the third week in March. From preliminary reports it is evident that the report on car loadings for the week ending Apr. 1 will again show a modest gain. This will mark the third consecutive week of improvement in freight volume. Weekly steelworks operations have stepped up from 13.5 per cent of capacity in the second week of March to above 16 per cent for last week. Production of electric power for the week ending Apr. 1 was down from the output in the preceding week. However, the decline from the corresponding week of 1932 was only 5.3 per cent as compared with a 6.9 per cent decline in the week ending Mar. 25 from the same week of 1932. Coal production has not turned upward since the bank holiday, but this a period of normal slackening in fuel output.

### Industry Watches Farm Bill for Clue on Lifting of Anti-Trust Restrictions

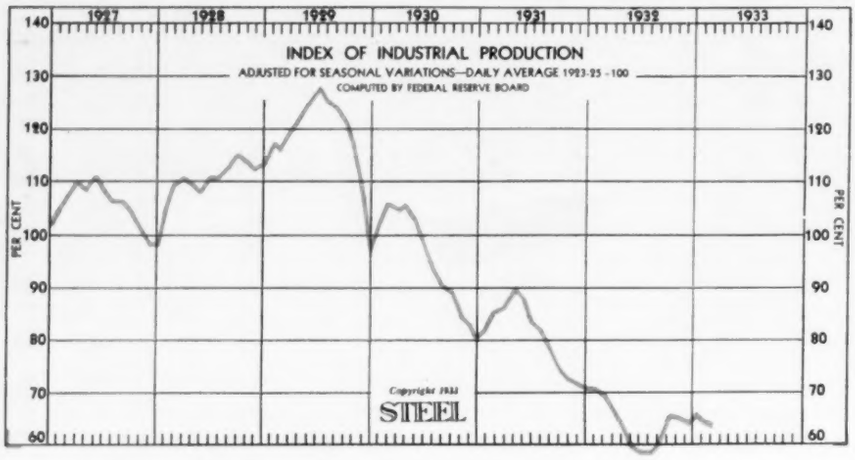
Interest of business centers upon experimental activities at Washington. Administration policy seems to be leaning toward regulated price agreements within industries. The farm bill provides for limited price fixing in agricultural products and greater leniency in regard to price discussions on non-agricultural commodities is considered not only possible, but likely.

It is rather strange that the first break in the effective restrictions of the anti-trust laws should appear in agricultural legislation, but such will be the case if the farm bill is adopted in its present state.




| 1933 | |
|---|---|
| April 1 | 15.5 |
| March 25 | 14 |
| March 18 | 15 |
| March 11 | 13.5 |
| March 4 | 15 |

| 1932 | |
|---|---|
| April 2 | 23 |
| March 26 | 23 |
| March 19 | 24.5 |
| March 12 | 25.5 |
| March 5 | 25 |



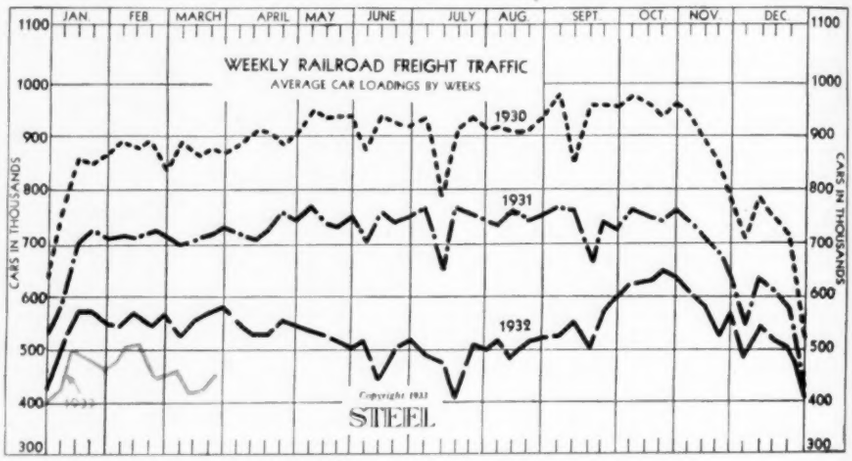

| | |
|---|---|
| February, 1933 | 64 |
| January, 1933 | 65 |
| February, 1932 | 69 |

### Industrial Production Index Declines in February

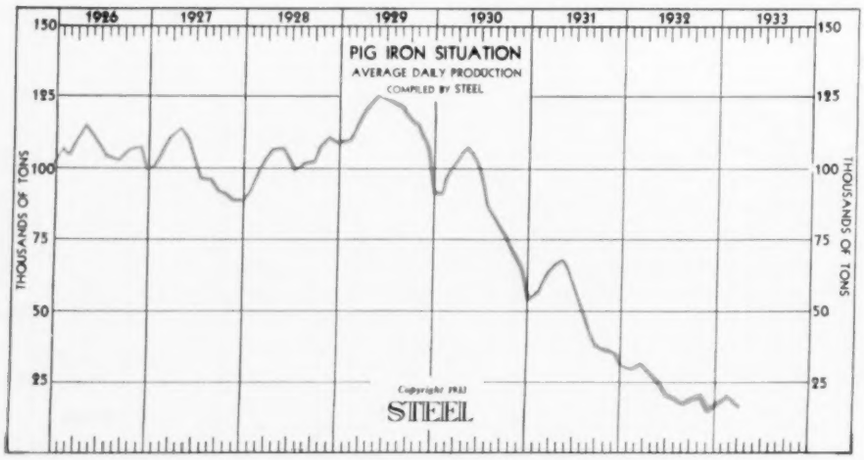
The index of industrial production as reported by the Federal Reserve board declined one point in February. The index figure for the month was 64 which compares with 65 in January and 69 in February a year ago. Despite the drop in general industrial production index, the iron and steel index advanced two points in February to 31. Advances also were reported in the leather and shoe industry, cement and tobacco manufacturers.

### Car Loadings Gain in Last Week of March

Loading of revenue freight for the week ending March 25 totaled 475,850 cars, according to the weekly report of the American Railway association. This was an increase of 26,138 cars over the preceding week but 85,268 cars under the movement in the corresponding week last year. Loadings in the first 12 weeks this year totaled 5,709,679 cars, compared with 6,799,829 in the corresponding period last year, a decrease of nearly 16 per cent.




| | 1933 | 1932 |
|---|---|---|
| March 25 | 475,850 | 561,118 |
| March 18 | 449,712 | 584,759 |
| March 11 | 437,813 | 575,481 |
| March 4 | 477,827 | 559,479 |




| | |
|---|---|
| March, 1933 | 17,484 |
| February, 1933 | 19,752 |
| March, 1932 | 31,194 |

### Pig Iron Output Down Sharply in March

The average daily production of coke pig iron in March dropped sharply from the February level. With a rate of 17,484 tons per day, March output was the second lowest on record, the lowest being 17,035 tons per day in August of last year. Daily output in March last year was 31,194 tons while production for the same month in 1931 was 65,448 tons per day.

*Fig. 1—The first step in fitting the lower telescopic mast. To the left of the fixture is a corner section of the mast ready to be hull riveted*

# MEET MOORING MAST REQUIREMENTS WITH ALLOY STEEL AND WELDING

BY A. E. GIBSON
Vice President, Wellman Engineering Co.

FIXED and movable mooring masts for dirigibles have been in use for years but these masts, if high, are not capable of lowering a ship from its high moored position to the ground for transport into and out of the ship dock. With the construction of the United States navy's unusually large airships, the AKRON, which last week was destroyed at sea, and its sister ship, MACON, now completed and awaiting tests at the Goodyear Zeppelin plant in Akron, O., it was necessary to develop and build a telescopic type mobile mast.

One of these masts was built last year and erected at the naval air station in Lakehurst, N. J., and a duplicate now is being erected at the navy's air base in Sunnyvale, Calif. Both of these masts were designed, fabricated and erected by the Wellman Engineering Co., Cleveland, and, because a new field was being pioneered and because specifications were rigid, the highest type of engineering and manufacturing skill was required.

The first of these masts was described in considerable detail in the Oct. 17, 1932, issue of STEEL. General specifications called for a structure with self-propelled trucks, a telescopic mast which could be elevated from 75 to 160 feet and its own power plant for generating electrical power to operate the various units. When it is considered that the navy's two ships, AKRON and LOS ANGELES, docked at Lakehurst, had but 5 feet wall clearance and 5 feet clear-

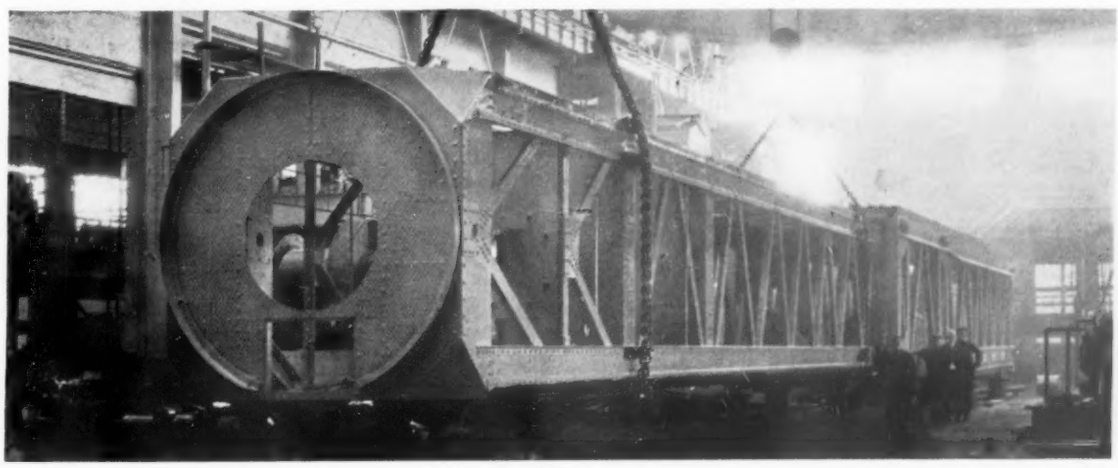


*Fig. 2—Here are shown the upper and lower sections of the mast being telescoped in the shop. Their total overall length is about 128 feet*

ance between ships, handling became a delicate problem.

The masts were designed to operate on both straight and curved track, 64 feet 6 inches gage for Lakehurst and 80 feet for Sunnyvale, and on a 3 per cent grade. Due to the height of the mast and the size of the supporting base, it was essential that the weight of the structure be kept low. To accomplish this, the movable mast sections were designed of alloy steel and the mechanical units built of welded construction. Total weight of the completed structure was approximately 500,000 pounds.

The mast consists of a base about 80 feet square, carried on four self-propelled, four-wheel, standard-gage, special railway trucks. Rigidly connected to the base is a superstructure, four-sided and pyramidal in shape, which supports a fixed section of mast about 21 feet high. Two telescopic sections of the mast, each approximately 64 feet long, operate inside the fixed mast, and the usual mooring mechanism, a conically shaped inverted bell, is attached to the top of the upper mast section to receive the mooring cone carried on the nose of the ship.

The power plant, hauling-in winch, telescoping unit, fuel and ballast pumps, air compressor and other accessories are housed on the base of the structure.

### Guided by Rollers

Rollers, with antifriction bearings and carried in equalizers, support and guide the upper telescopic section. Similar rollers, mounted in the fixed section of the mast, guide the lower telescopic mast unit.

Sudden shocks to the ship which might be encountered because of excessive play between the mast sections and their supporting rollers were guarded against by maintaining close tolerances in the moving parts. The specifications, governing the fabrication of the two telescopic mast sections, called for not more than 1/32-inch deviation from square anywhere in the entire length of these sections. Extreme care in the fabrication of these units was essential to maintain this high degree of accuracy. When it is considered that the lower mast section is a hollow square without diaphragms, the rigidity of the specifications can be appreciated. All rivet holes were drilled to eliminate distortion in punching and to avoid possible stretching of the material.

### Rigid Base Constructed

The first requisite in fabricating these mast sections was a rigid, true base upon which to work. Heavy cast-iron floor plates were used. Three of these sections of bed permanently set into the concrete floor were used and three additional ones were lined up above the floor and were set level with the permanent beds, using a surveyors' level. Rigidly attached to the bed sections were machined horses, consisting of I-beams welded together, and on top of the horses were attached, by bolting and welding, angle plates gaged to the proper width and lined true with a piano wire.

Fig. 1 shows the first step in fitting the lower telescopic mast. Set against the angle plates on the right-hand of the fixture is an alloy corner angle, drilled and countersunk. This is one of the angles against which the guide rollers contact. On the left of the fixture is shown a corner section of the mast, fitted and ready to be bull riveted. The triangular braces which were of flanged alloy plate to eliminate the weight of built up units are to be noted. The legs of these braces were machined to insure correct alignment.

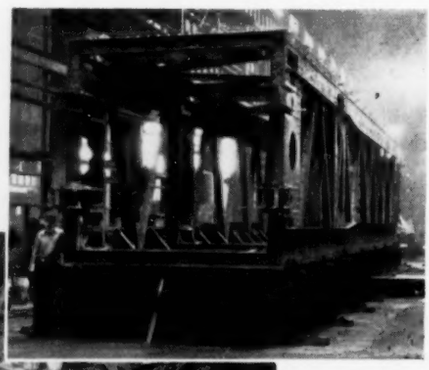
All four corners of the mast section were made up in this manner as the first step in fabricating the unit. In the design of the movable mast sections utilizing alloy steel, rivets of alloy steel were used to obtain strength, equal to the structural sections. Several kinds of alloy steels were made into rivets and tested in single and double shear, also in tension. Steel of 0.30 carbon, 1.35 manganese, giving tensile strengths agove 90,000 pounds per square inch, was used for the rivets.

The rollers pass over the countersunk rivet heads in the corner angles of the mast and it was necessary that the heads be flush with the angle. It was impossible to make chisels which would stand up in chipping the countersunk rivet heads, consequently the corner sections of the mast were put on a planer, the speed of which was reduced sufficiently to plane the heads of the rivets flush with the angles.

### Seek To Avoid Distortion

Fig. 3 shows one side of the mast fitted together with the cross bracing. The corner sections were bolted to the angle plates on the horses before fitting the cross bracing in place. This securely fixed the dimensions out to out of the angles and extreme care was used in bolting and riveting the bracing so as not to distort the corner angles between the angle plates. No drifting of holes was permitted and after removing the bolts, attaching the corner angles to the angle plates, no distortion in the mast side was found.

Fig. 4 shows the lower telescopic mast section completely fabricated ready to receive the equalizing rollers. One of the brackets which support the equalizing rollers is shown in the corner by the man. These brackets were machined before being fitted in place in the mast. The machining of the equalizer pin holes in the brackets, which are at right angles to each other, was done on a planer-type horizontal boring mill with the bracket attached to a rotating table, using an indicating vernier angle gage to insure correct position of the equalizer pin holes. It was necessary that these brackets, located in the four corners, be



◆

*FIG. 3 (Lower Left)—One side of the mast fitted together with cross bracing. Fig. 4 (Upper Right)—The lower telescopic section completely fabricated and ready to receive the equalizing rollers*

◆

set with extreme accuracy, and so they were checked pin hole to pin hole and across the diagonal.

With one side of the mast on the assembly fixture, Fig. 3, the bracing for two sides was bolted in place and the other completed side was lowered into position and bolted up. The over all gage, out to out of angles, was adjusted to a solid metal gage, and plumb bobs every few feet were used on each side to check the squareness of the structure. Some of the plumb bobs can be seen in Fig. 4.

### Careful Check on Squareness

Where necessary, jacks for spreading, or steamboat ratchets for pulling in, were used and when the unit was squared the entire length and securely bolted together, the remaining riveting was completed. Certain sections of the mast were reinforced by welding after being riveted. A final check for squareness and over all size was then made and in neither the Lakehurst nor Sunnyvale mast was the unit found to be distorted in riveting.

Fig. 2 shows the upper and lower sections of the mast, a total overall length of approximately 128 feet being telescoped in the shop. To facilitate assembly of these two mast sections the equalizing roller assemblies were set wide of the width of the mast and after the two mast sections were telescoped the rollers were adjusted to their correct setting. This was accomplished by means of eccentric equalizer pins designed for a throw of ⅜-inch. The two sections of the mast, supported on steel bolsters, were loaded on three flat cars and shipped to the field telescoped.

Fig. 5 shows the manner in which the square girders of the fixed mast were fabricated. It was essential that the connections be closely held to eliminate any warp or twisting in the fixed mast. This mast consists of two square girders held together with bracing to make a section some 21 feet long. The boring of the holes for the equalizing rollers also was a matter requiring extreme accuracy.

The girder sections are hollow squares and a steel fixture machined on the four corners was provided to which the four sides of the girder were bolted for assembly. This procedure insured a true, square unit. In addition to the riveting, various sections of the girder were welded for additional rigidity and strength.

In erection, the outer movable mast was hinged to the base and raised to a vertical position with a 90-foot boom crane. After the movable masts were set vertically the fixed mast girders were lowered over them and fastened to the bracing.

### Cable Pull Measured

In field tests of the mast, a draw bar pull was made using a locomotive crane anchored to the track. Cable was attached to the mast under frame and to the locomotive crane with sufficient reeving using a 30,000-pound capacity Chattelon dynamometer to register the pull. The specified draw bar pull was 50,000 pounds. The pull registered was 57,200 pounds, which amply exceeded specifications.

The side pull test at the top of the mast was made with the use of a locomotive crane. The mooring winch cable was passed through the mooring cup on top of the mast, around a block and then anchored to the mast head mechanism. This block was secured by a clevis to a six-part block, one end of the rope being secured to the hoist drum of the locomotive crane, and the other dead ended on the crane. In the dead end line was connected the dynamometer which would register one-sixth of the total pull on the mast top.

### Exceeds Test Limits

The center of the mast was spaced 650 feet from the crane drum. It was calculated that a stress of 68,400 pounds with the mast depressed and 54,100 pounds with the mast extended was equal to a pull of 58,000 and 40,000 pounds, respectively, for the two positions with an added allowance of 10 per cent to cover sheave friction, etc.

The actual side pull applied to the depressed and extended mast was 72,600 and 54,100 pounds. In the extended position with the maximum pull applied a deflection of the mast of 18 inches was found. When the load was released the mast returned to its original position.

The four four-wheel, motor driven trucks are provided with bearings of self-aligning roller-type; the wheels are rolled steel and the gears are hardened. The center bolster and brake connections are of welded steel. The spherical boring of the cast steel side frames was done on a planner-type, horizontal boring mill, both bores being made with a single setting of the castings, which insured positive alignment of the two axles. In fitting the roller bearings, the bores in the side frames were scraped to a fit with the hardened roller races, and at the split the bores were relieved to prevent any possible side pinching of the races

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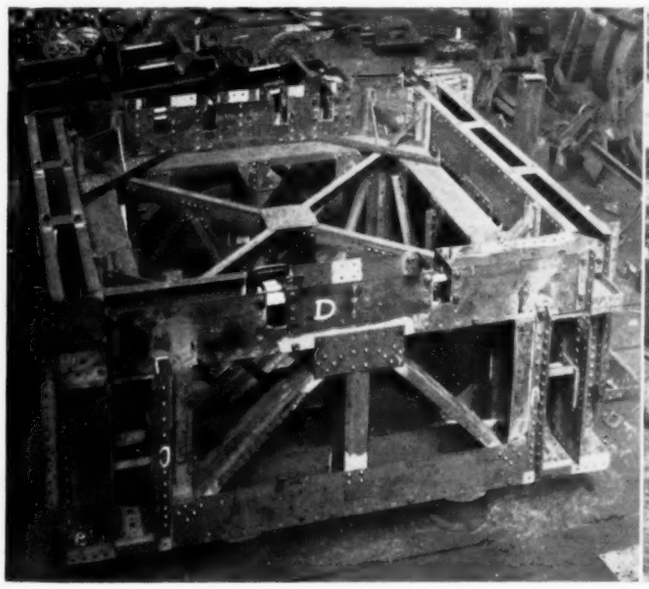


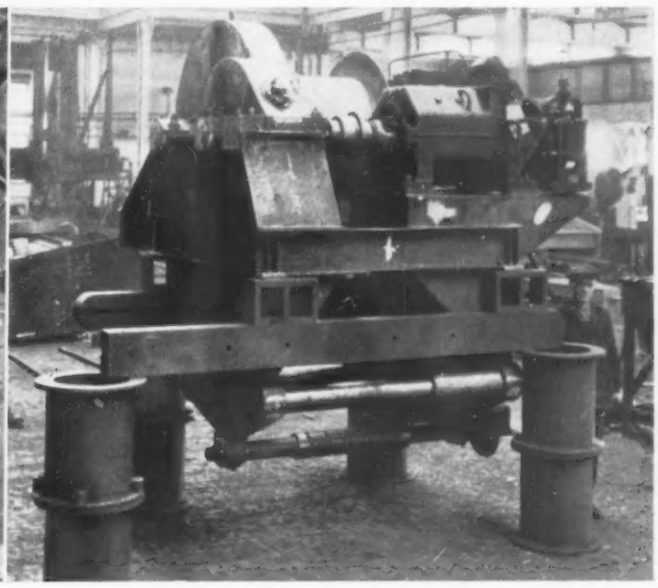


*Fig. 5 (Left)—This shows the manner in which the square girders of the fixed mast were fabricated to eliminate warping and twisting. Fig. 6 (Right)—Welded construction was used for all mechanical units, the hauling-in winch being a good example. Oil-tight gear cases are integral with the bed*

# British Producer Perfects High-Tensile Chromium-Copper Structural Steel

A NEW high-tensile strength structural steel, claimed to show 50 per cent greater strength than the usual quality of structural steel, twice the corrosion resistance, and selling at a price reputed to be only 15-25 per cent above that of mild steel, has been developed by Dorman, Long and Co. Ltd., Middlesbrough, England, according to reports published in recent issues of *The Engineer* and *Engineering*, British technical journals.

Known as Chromador, the new steel is being furnished in plates and sections and has the following chemical analysis: Carbon not exceeding 0.3 per cent; manganese 0.7-0.10 per cent; chromium 0.7-1.1 per cent; copper 0.25-0.50 per cent; silicon not exceeding 0.2 per cent; sulphur not exceeding 0.05 per cent; and phosphorus not exceeding 0.05 per cent. Ultimate tensile strength is said to range from 83,000 to 96,000 pounds per square inch; elongation with ½-inch specimens 17 per cent in 8 inches; and guaranteed minimum yield point of 51,500 pounds per square inch.

**Similar Variety in U. S.**

These figures are comparable to specifications for silicon structural steel used in the United States today. In the case of the latter with copper added for corrosion resistance, an extra of $3 per ton is added, making the price about 20 per cent higher, as in the case of the new British product.

The manufacturer also has introduced a new high-tensile rivet material for use with the new steel; this consists of a somewhat milder grade of chromium-copper steel.

Taking into account the only moderately increased cost of the new material as compared with mild steel, the manufacturer points out that if advantage be taken of its greater strength considerable economy is possible in the total cost of a structure in which it is used. The saving would be greatest, it is pointed out, in the case of long-span bridges, in which the weight of the steel itself forms a large proportion of the total load.

However, even in small-size structures, economies are possible. As an example, if 15 tons of mild steel were required for a certain structure, only 10 tons of the high-tensile steel would be needed. Thus, in spite of a differential in cost in favor of mild steel, the total cost would be reduced. Further there would be additional saving in handling, transport and erection costs.

The new steel is intended for structural uses, including shipbuilding. It is not at present being advanced for use in boilers or elsewhere involving exposure to high temperatures, although as far as is known physical properties at high temperatures are satisfactory.

**Extra Cost Varies with Section**

As a result of preliminary tests the producer is satisfied that with use of the steel in bridges and buildings permissible stresses allowed in England by present standard specifications for steelwork of such structures could be increased safely by 50 per cent. The precise additional cost is dependent upon the section in which the steel is required.

A question may be raised as to why the extra cost of the new steel should be dependent upon the section in view of the fact that the price of ordinary mild steel already embodies a variation according to section. The answer to this question lies, partly at least, in the fact that the percentage of scrap produced in the manufacture of plates and sections is greater in the case of Chromador steel than in the case of mild steel, while commercial value of the scrap is not greater than that of mild steel scrap.

## Studies Wear of Metals in Refractories Industry

Wear of metals in the refractories industry is an important factor from the standpoint of the cost of the renewal of certain parts of production machinery as well as from the effect on the uniformity of the product. Intelligent co-operation between the metallurgist, equipment maker and fire brick manufacturer can do much toward improving this situation.

With the purpose of throwing light on this subject, the American Refractories institute, Oliver building, Pittsburgh, has published as bulletin No. 36, dated March, 1933, a report entitled "Metal Wear in the Refractories Industry." C. E. Bales, vice president, Ironton Fire Brick Co., Ironton, O., is the author.

This report presents information on wear by considering each type of equipment in some detail.

## Wins Award for Support of Small Machine Shop

For the best paper dealing with "economic justification of the small machine or tool shop" Fred J. Schlegel, 338 York street, Pottstown, Pa., was awarded certificate of merit of the American Machinery and Tools institute, 40 North Wells street, Chicago, in a recent contest conducted by the institute. In his comment Mr. Schlegel pointed out that the multiple duties of the owner of the small machine shop enable him to expedite work, keep down the cost of supervision and other overhead expense, obtain greater co-operation between the buyer and the shop organization in the development of changes, and bring to the job the varied experience of many types of work and the ability to make a profit out of small orders.

## New Data Published on Molybdenum in Cast Iron

New information on the applications of molybdenum in cast iron has been compiled in a 22-page booklet recently issued by the Climax Molybdenum Co., 295 Madison avenue, New York, as the 1933 supplement to a similar booklet, *Molybdenum in Cast Iron*, published in 1931. The new supplement is suitable for binding with the original material. Profusely illustrated, it is divided into three parts—molybdenum in gray iron, white iron and malleable iron, respectively.

# Tantalum Carbide and Rapid Tapping Discussed at Machine Shop Meeting

DESCRIPTION of the latest developments in use of tantalum carbide and a demonstration of high-speed tapping machines evoked considerable interest from 200 members and guests attending the annual machine shop practice meeting of the Chicago section of the American Society of Mechanical Engineers, March 30. C. B. Cole, president Tool Equipment Sales Co., Chicago, presided.

James D. Cunningham, vice presi-

(*Please turn to Page* 52)

# IMPROVING OPEN-HEARTH FURNACE DESIGN

BY WILLIAM C. BUELL JR.

## Part V—Open-Hearth Furnace Lines

(Twenty-Seventh Article of Series)

IN TABLE LII the term "Forced" in column b is used to indicate mechanical and, therefore, controllable draft in contradistinction to "natural" in which case the air is presumed to move through the regenerattive and furnace uptake systems under the influence of thermodynamic action only.

Under column c the fuel heads are assumed as "Low" if the fuel has passed through regenerators, or floats into the air stream as is the case of the side injection of coke oven or natural gas or similar fuels, that produce little or no effect on flame direction. The fuel head is designated as "High" in the case of oil, tar, coke oven or natural gas that is end injected under an appreciable pressure which is utilized to some extent in the control of flame direction. The ratio, column g, is that of the linear length of flow of the air from the furnace end wall to the near end of the bath, to the combined length of the throat bank and bath which is taken to equal 1.0. This ratio varies from 0.2081, furnace O, to 0.301, furnace G. The order of the difference in the 16 furnaces in this respect is thus approximately 0.66 to 1.0. Greater length undoubtedly has a considerable tendency to produce stream line air effect through the throat which would appear to be desirable.

### Serves as Mixing Chamber

Obviously, fuel mixing and combustion cannot start in the throat until the air passes the fuel inlet. Therefore, the throat can be considered as a mixing or combustion chamber only from the point at which the fuel is injected into the air stream.

In column h the ratio given is that of the length of fuel flow from the point at which it is injected to the bath, to the near end of the bath, to the length of fuel flow plus that of the bath which is considered as 1.0.

It may be seen that the variation of this ratio is from 0.0716 to 0.2215 or of the order of 0.33 to 1.0 much greater than the ratio previously mentioned, and it is believed that this ratio has a most important bearing on ultimate economy as in the greater number of cases the furnaces having the higher ratio are producing much the better operating records. It is indeed unfortunate that such a great number of variables enter into the consideration of air and fuel flow and combustion development as to make any exact analysis of these most interesting factors utterly impossible.

The several lineal factors of Table LII are shown diagramatically in Fig. 44.

### Cross Sections Are Important

The speed of the flow of the gases across the hearth and the transfer of heat to the bath are in a major degree regulated by the contour developments of the various cross sections and their areas. Appropriate cross sections, therefore, are of utmost importance in the design and economical operation of open-hearth furnaces.

The development of the principal and critical cross sections of the various furnaces is given in Fig. 45, as well as the principal details of uptakes (or down-takes) and the throats in plan.

It will be noted that certain critical cross sections are designated $A_1$, $A_2$, etc. These symbols refer to the loca-

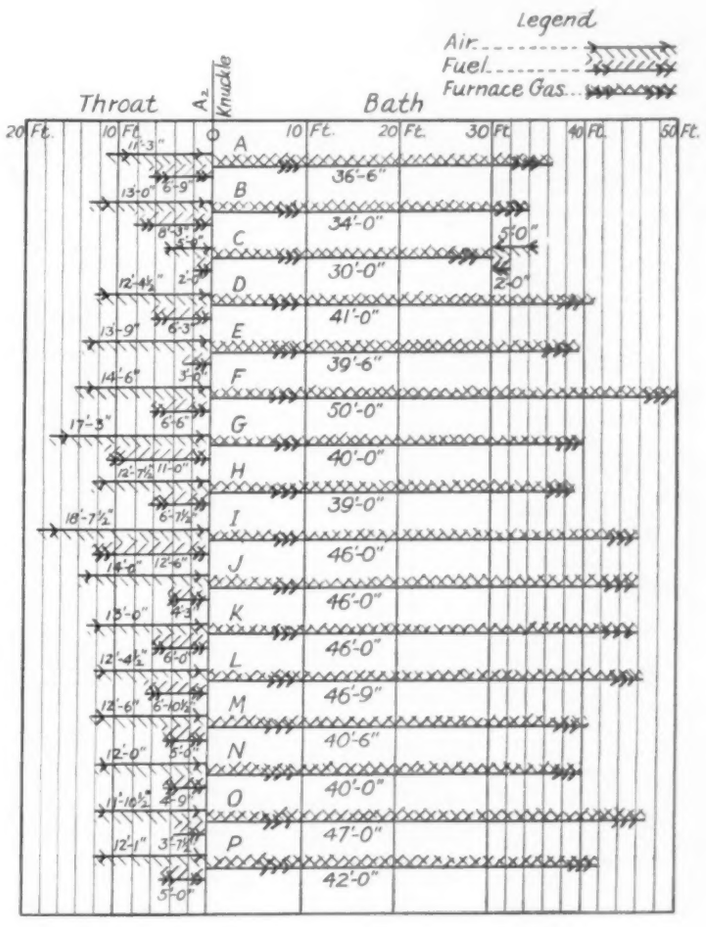



*Fig. 44—Diagramatic comparison of lengths of fuel, air and furnace gas travel*

tion at which the sections are presumed to be taken and which are shown in connection with the sectional elevations of the furnaces in Figure 43. $A_1$ is the vertical cross section at the center line of the hearth. $A_2$ is the vertical cross section through the roof knuckle and the monkey walls, $A_3$ is vertically through the fuel inlet port, $A_4$ gives the least area of the throat between the knuckle and the end wall and $A_5$ the vertical area over the uptakes at the greatest roof elevation.

As these sections are shown in the upper part of Fig. 45 the contour lines indicate the inner refractory surfaces and thus enclose the free area of the section. The various sections of each furnace as subimposed from $A_1$ to $A_5$ are shown in correct relation to each other both horizontally and vertically.

The lower views of Fig. 45 give enlarged vertical sections of the throats of the several furnaces, the dimensions and areas of the uptakes and downtakes, the magnitude of the slopes of the lower throat surfaces, the general arrangement of the fuel injection method as well as the relation of the normal axes of firing to the furnace center line.

Of the furnaces designed for a fuel, producer or mixed gas, injected with a low head as in furnaces A, G, J, K, L, N and O, all but the ports of furnaces J and K have axes parallel to the furnace center line*. The axes of the fuel ports of furnaces J and K are angled toward the front doors. With the type of fuel port employed in these furnaces, the direction of the flame both vertically and horizontally is fixed by brickwork construction and a port rebuilt is necessary to accomplish any material change.

*(To be continued)*

*Illustrations of furnaces 45C to 45P will be presented in subsequent issues.

## Perfects New Process For Welding Heavy Plates

A new development in arc welding, particularly suited to the joining of heavy plates, has been announced by the Metal & Thermit Corp., 120 Broadway, New York.

The new process, known as Murex straight-gap welding, does away with the need for veeing or grooving of plate edges. Plates may be used just as they come from the mill. Greater welding speed, as well as appreciable reductions in cost, are claimed. Developers of the process say that it cuts welding time in half, and, by eliminating preparatory work and reducing the quantity of weld metal required, achieves considerable economy in welding heavy plates.

In addition, it is stated, tests conducted by outside laboratories show that straight-gap welds are physically superior in many ways to those in which the V or U-gaps are used.

In connection with the new process, the company announces an addition to its line of heavy mineral-coated electrodes. The new electrode, designated as Murex Universal, is for use on mild steel and may be employed in either flat, vertical or overhead work.

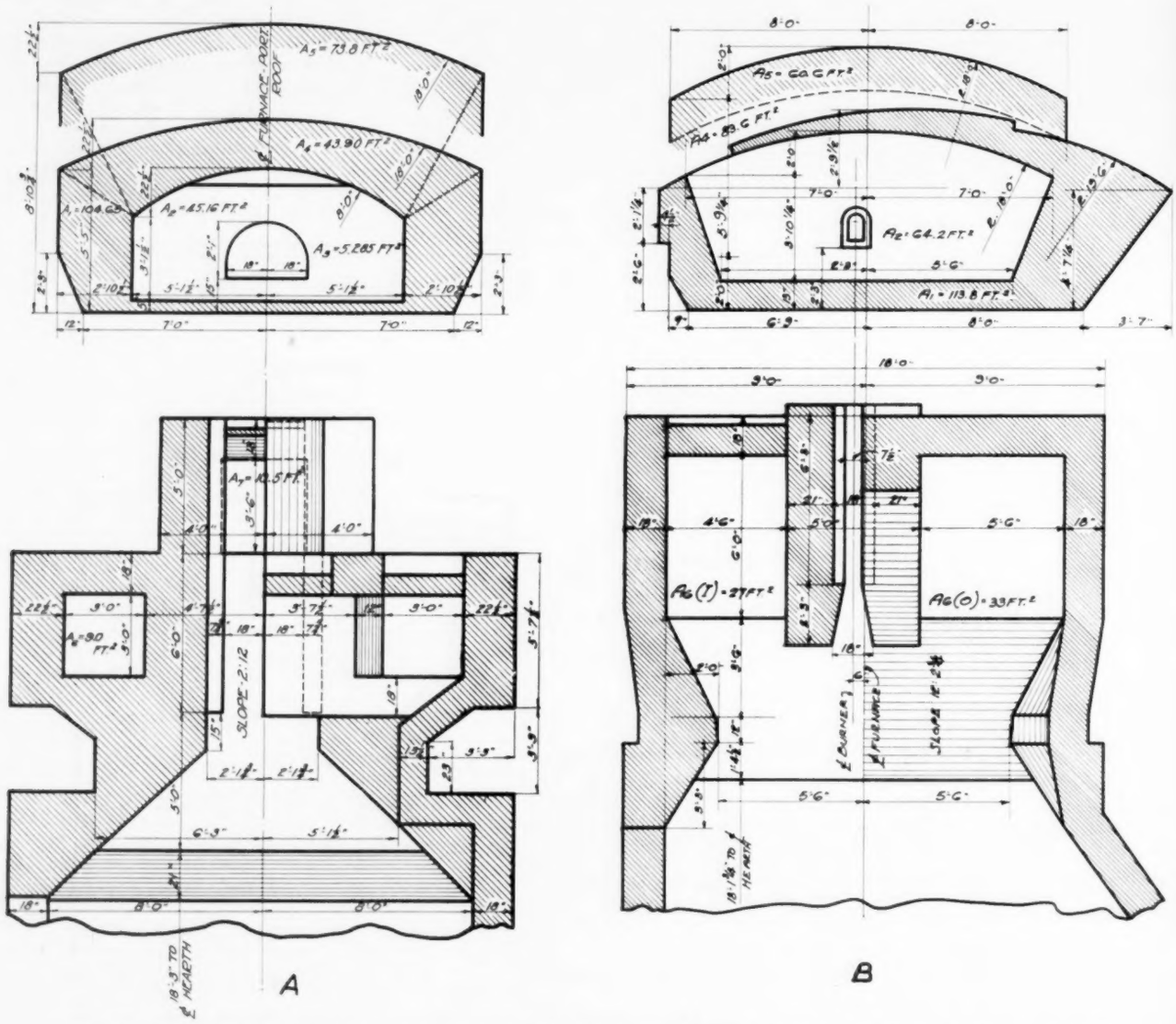
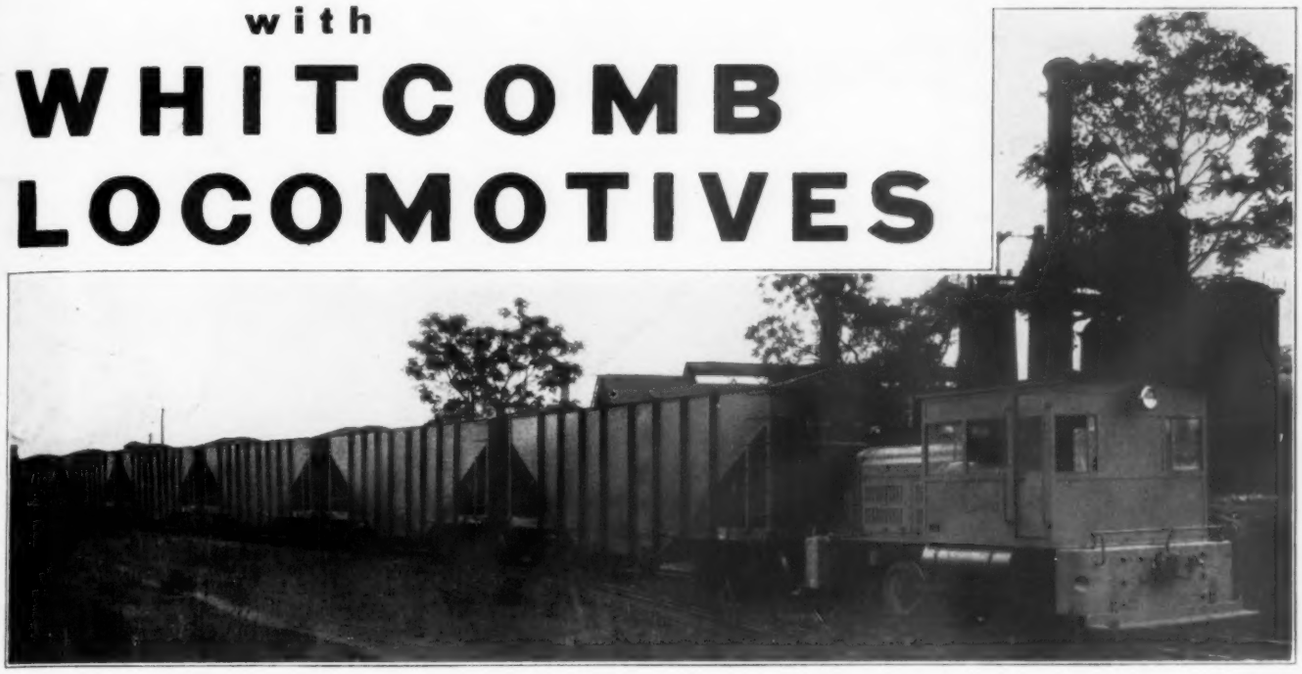



*Fig. 45—Principal and critical cross sections and details of uptakes and throats in plan of furnaces A and B*

# A YEAR OF ROCK BOTTOM COSTS with WHITCOMB LOCOMOTIVES



VIRGINIA BRIDGE & IRON COMPANY keep accurate cost records on their various operations . . . plant switching is an important one of these.

A 30-ton 6-wheel Whitcomb gasoline replaces an 8-wheel 60-ton steam locomotive and handles 50 thousand tons of inbound and outbound freight per year over 10,750 feet of factory trackage in the Roanoke Plant of the Virginia Bridge & Iron Company.

This Whitcomb six wheeler handles as many as 20 cars per train over industrial trackage having many sharp curves and grades at an average operating cost of $1.35 per hour. This cost figure includes the following:

Engineer's Salary
Gasoline
Lubricating Oil
Repair parts and labor
Grease
Waste

The locomotive has required few repairs, has performed a more than satisfying volume of work and has paid for itself out of the savings effected during the first two years of operation.

Whatever the load moving requirements of your project there is a type and size of Whitcomb to haul the load and make the grade.

Details on Whitcomb cooperation in meeting haulage needs are yours for the asking.

THE WHITCOMB LOCOMOTIVE COMPANY

*Subsidiary of The Baldwin Locomotive Company*

ROCHELLE . . . . . ILLINOIS

# WHITCOMB LOCOMOTIVES

# *Making the Most of*

# METHODS AND MATERIALS

MOTORS, fans, and many other kinds of equipment are studied for noise by a large electrical manufacturer, using a padded cell, or room within a room, of such construction that outside sounds and even building rumble cannot enter. The outer wall is of sound-absorbing plaster; next within is hollow tile; then an air space; felt; another wall of sound-absorbing plaster; more air space; sheet steel; air space; lath work; and finally a thick layer of cotton waste, making a total thickness of about 18 inches. The ceiling of the inner room is similarly constructed; and the floor is supported on a felt blanket. Heavily padded doors isolate the room. Within this room experiments are conducted to determine the amount and type of noise, measurements being made with a noise meter developed by the company's laboratory.

S S S

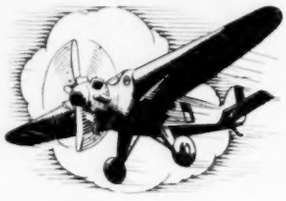
Propeller blades for ice breakers used by the Canadian government to keep the St. Lawrence river channel open for navigation throughout the winter months are made of a cast steel containing 3 per cent nickel. The propellers strike the ice with considerable impact and must stand up with little wear and no breakage.

S S S

BULK materials, such as coal, ashes, ore, cement, and the like, can be carried vertically, horizontally, up inclines and even around corners in a steady, undisturbed flow through enclosed steel or wooden troughs, by a simple but revolutionary type of conveyor introduced recently in this country from England. In its present form the conveyor consists of a series of light skeleton flights, closely spaced on a flexible steel cable or conveyor chain, which is pulled through a smooth trough. The unique conveying action is due to the fact that with practically all materials, it takes less power to pull a column of material through a smooth trough than it does to drag the flights through the same mass. These flights are U-shaped or H-shaped bars which float in the material. Sidewall pressure and gravity are overcome in elevating the mass before the flights cut their way through the solid column of material.

S S S

Aluminum alloy used in the construction of airplanes is heat treated at temperatures of approximately 975 degrees Fahr. The heating medium used in general for these parts, such as aluminum alloy sheets, is a solution of 50 per cent sodium nitrate and 50 per cent potassium nitrate. For heating this solution an electric furnace has been developed with the heating unit cast in iron of special analysis. These units are



immersed directly in the salt solution, thereby providing a maximum efficiency of heating. By use of the immersion units, it is claimed that the life of the tank is increased, overall dimensions of the equipment decreased, and heat losses decreased; also there is no temperature lag between the heat source and the bath. This construction provides for accurate temperature control and temperature distribution, as the immersion-type heating units can be located and distributed as desired.

S S S

Powdered metal has been sprayed or painted on surfaces with an easily combustible hydrocarbon and then processed in various ways. A recently developed welding rod, made of 1.5 per cent manganese steel with powdered nickel sprayed on the surface may be cited. Powdered chromium used as a mold wash, gives cast iron with a hard corrosion-resisting skin. Zinc or other corrosion-resisting metal has been sprayed on steel sheet, then heat treated to burn off the binder and weld the particles together and to the base metal, and the whole sheet rolled to consolidate and smooth the coating.

S S S

The distance between the valleys or the peaks of a turned or planed surface is determined by the feed. The peaks often show two indentations, while the valleys and the flanks of the gills are always distinctly roughened because of metal chips being torn off or jammed. In the case of the milled surfaces, it is interesting to note the considerably smoother finish obtained, under otherwise identical conditions, with a spiral-tooth cutter as compared with a straight-cutter.

S S S

MANGANESE steel castings formerly could not be welded successfully because of a low-temperature embrittlement back of the weld from a formation of carbide needles and also a high-temperature embrittlement at the weld surface due to the formation of eutectic. A welding electrode has been developed, however, which contains from 12 to 15 per cent manganese, 3 to 5 per cent nickel and low carbon, and which forms no eutectic in the contact zone.

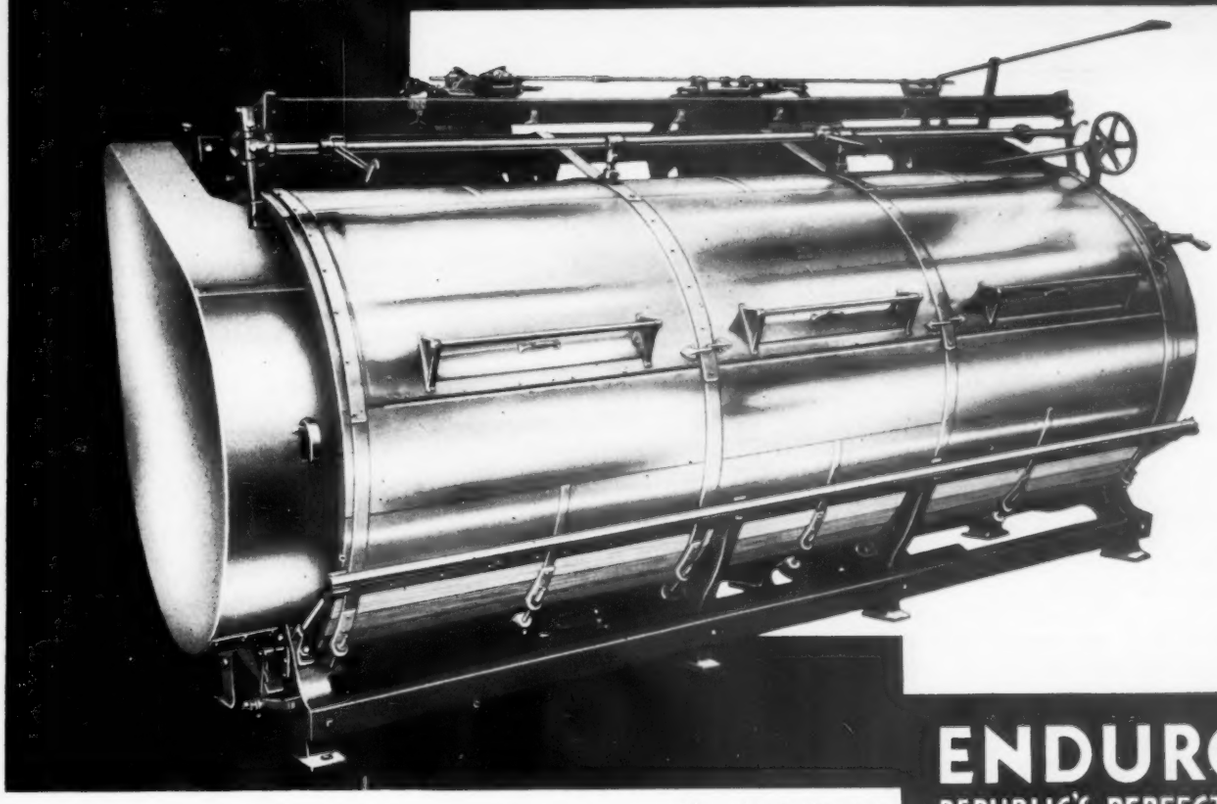
S S S

Chromium plating the interior surfaces of core boxes to be used with blowing machines has been found to decrease the wear on the box due to abrasion of the sand and to facilitate greatly the removal of the finished core from the box.

S S S

The heating system for the new Chicago postoffice involved approximately 60 miles of pipe joined by 12,000 welds. All of the pipe was cut to fit on a recently developed automatic oxyacetylene pipe cutting machine, one man operating the machine keeping four welders busy. When the first section of the building was completed and tests on the piping were made in accordance with government regulations, only two leaks developed and these were repaired in 30 minutes.

# AMICO FINDS INCREASED *Beauty* AND *Efficiency* IN ENDURO



*Licensed under Chemical Foundation Patents Nos. 1316817 and 1339378.*

**ENDURO**
**REPUBLIC'S PERFECTED STAINLESS STEEL**

The Amico Company, Chicago, Illinois, manufacturers of laundry equipment believe in the idea that the way to better business is through better products. As a result, the new Amico Washer makes generous use of ENDURO Stainless Steel.

The cylinder, of patented construction, is made of wood and ENDURO in such a manner that all the advantages of wood are retained and many of the disadvantages of all-metal construction are eliminated. Inside partitions and outside bands are ENDURO. The outside shell is polished ENDURO. The manufacturer reports increased attractiveness because it gives immunity from rust, and efficiency through wood and shell construction.

Thousands of products can be improved by the use of ENDURO, Republic's Perfected Stainless Steel. It is the same unchanging metal all the way through. Its long life, its beauty, and its strength bring added saleability to products in which it is used. The Amico Company, like hundreds of other alert firms, have found that an ENDURO-improved product is a sure key to increased sales.

ENDURO can be supplied in the form of billets, bars, rods, wire, plates, sheets, strip, tubing, and nuts, bolts and rivets. There is a shape and an analysis to meet every condition of service and fabrication.

Write for booklets containing full information.

CENTRAL ALLOY DIVISION . . MASSILLON, OHIO

**REPUBLIC STEEL CORPORATION**

# PROGRESS IN STEELMAKING

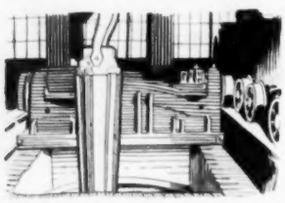
COMPENSATING the workmen in the cleaning house of a wire mill to obtain a cleaner product is accomplished by a novel system in effect at a midwestern wire mill. Those associated with the heat treating and cleaning departments are paid on the basis of quality rather than on the basis of output. All wire drawers are engaged on a piecework basis. A premium predicated on the average earnings of the wire drawers is paid the workmen in the cleaning and heat treating departments. By this arrangement a wire drawer's pay is commensurate with the quality of the heat treated and cleaned material delivered to him.

♦ ♦ ♦

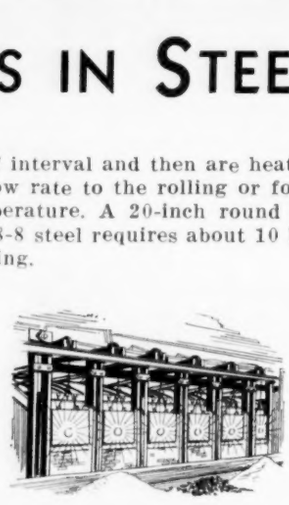
Experiments now in progress indicate that less than 1½ million B.t.u. are required for box annealing strip and sheets and that the time the boxes are required to remain in the furnace can be reduced 25 per cent.

♦ ♦ ♦

Deeper abrasive penetration at the ends of mill rolls in the process of being ground occurs when the grinding wheel travels off the roll body more than 25 per cent of its face. This, according to an abrasive authority, takes place because of the reduced area of contact and of consequent pressures on the separate grains of abrasive.



RUPTURING of rustless steel is prevented at the plant of one producer by charging the ingots hot into the soaking pits with the gas off. The ingots are permitted to soak for a brief interval and then are heated at a slow rate to the rolling or forging temperature. A 20-inch round ingot of 18-8 steel requires about 10 hours heating.



SIEMENSIT, a new constructional material developed in Germany for basic open-hearths, is a refractory which resists the action of acid and basic slags at low and high temperatures. The refractory is produced by melting together in a reducing atmosphere chromite, bauxite and magnesite in the correct proportions so that the mix will contain from 20 to 40 per cent $Cr_2O_3$, from 25 to 45 per cent $Al_2O_3$ and from 18 to 30 per cent MgO combined as spinel the remaining 8 to 14 per cent constituting small quantities of the chief constituents present as silicates. The specific gravity ranges from 3.2 to 3.4 including pores and holes; expansion between 0 and 2192 degrees Fahr. ranges from 1.2 to 1.4 per cent and about 2 per cent above 2192 degrees. Tests disclose the new refractory is economical even in those parts of the furnace where conditions are severe.

♦ ♦ ♦

Measuring the volume of coke charged into blast furnace skips now is accomplished automatically by a new device, which relieves the skip operator from this duty.

♦ ♦ ♦

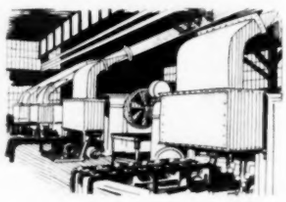
Steel mill operating costs are challenged by an Eastern plant where welded charging boxes and cars serve the open-hearth department. Each car with four charging boxes considered as a transportation unit weighs 3700 pounds less than the unit previously hauled. With the open-hearth charging floor 25 feet above ground level, a train of 10 welded cars shows a saving at the coal pile of 925,000 foot-pounds per trip.

♦ ♦ ♦

Bearing difficulty experienced with the top roll of mechanical feeders for tin pots has been remedied by a simple means. A bushing made from seamless steel tubing and hard faced on the exterior with an alloy resistant to heat and acids, is bored and then pressed and ground on the shaft. A bearing of this type lasts as long as the roll compared with a 6-day campaign for material originally used.

♦ ♦ ♦

An automatic measuring device which indicates on a dial the length of the sheet after each pass and returns to zero between passes now is being developed for hot sheet mills equipped with automatic feeders and catchers. This instrument will give the roller an accurate and continuous check on each reduction and will permit him to compensate for errors during the finishing passes. Packs therefore can be rolled to length without the necessity for additional passes and without incurring unnecessary scrap loss.



RUNOUT tables for conveying hot sheets between double pack furnaces and the hot mill feeder table have been built to move the packs at a speed of 250 to 330 feet a minute.

# SCANNING THE FIELD OF TECHNOLOGY

A Digest of Important Developments Pertaining to the Production, Processing, Application and Performance of Steel

### Lubrication in Mill

*Lubrication, published by the Texas Co., 135 East Forty-second street, New York, March, p. 25, 8½ pp., 14 ills.*

Steel mill operations, particularly in the lubrication of rolling equipment and overhead traveling cranes, represent a field for development of greater economy from the lubrication angle. Means and methods of lubrication require intelligent study; properties of lubricants must be investigated, especially from the viewpoint of load-carrying and heat-resisting ability; and the conditions of service must be analyzed. Specific lubrication problems in the steel mill are dealt with, and attempts are made to arrive at their intelligent solution.

STEEL, 4-10-33

### Friction of Bridge Metals

*By R. P. Davis and G. P. Boomsliter, report made to committee on iron and steel structures, American Railway Engineering association, by college of engineering, West Virginia university, Morgantown, W. Va., 1932, 9 pp., 3 tables, 1 ill., 15 charts.*

Object of this investigation was to determine coefficients of friction of various bearing metals for bridge seats, in particular, bronzes and steels. Various types of rolled and cast bronze were tested, as well as rolled and cast steel, these materials being used for expansion bearings in concrete girder bridges.

STEEL, 4-10-33

### Manufacture of Files

*Electrical Production, April, p. 9, 2 pp., 3 ills.*

Practically all file-making machinery is of special design, developed by the file manufacturing companies. Modern machines can turn out from 500 to 2500 files per day, depending upon size. Forging, grinding, cutting and heat treating operations all have an important part in the manufacture of these commonly used implements.

STEEL, 4-10-33

### Press Work Pressures

*By C. W. Lucas, in American Machinist, March 15, p. 181, 3 pp., 2 full-page plates.*

Guesswork usually plays a greater part than knowledge in selection of a press for a given job. To remove guesswork the author, over the past 20 years, has kept records of about 1000 tests which are to be reproduced in this series of articles. This installment reproduces 28 of these test records. By comparing some of the tests made with some of the jobs being run in his own shop, the press user can determine whether the press is working to capacity or is overloaded.

STEEL, 4-10-33

### Cellular Flooring

*By J. M. Frankland and H. L. Whittemore, in Journal of the American Welding society, March, p. 4, 8 pp., 8 ills., 5 tables. Abstracted from bureau of standards Journal of Research, August, 1932.*

Tests made on sections of cellular sheet steel flooring at the bureau of standards, Washington. Description of this flooring, made up of steel sheets corrugated and welded together, was given in STEEL, June 13, 1932, p. 28.

STEEL, 4-10-33

### Analyzing Stresses

*By A. G. Solakian and A. H. Beyer, in Product Engineering, April, p. 145, 3 pp., 8 ills.*

Stress analysis by transparent models is assuming greater importance. In simple language the authors explain the polariscope, how lines and fringes are interpreted and the stresses calculated. A second article will deal with stresses in shrink fits as revealed by the polariscope.

STEEL, 4-10-33

### Die Casting Economies

*By Gustav Nyselius, in Machinery, April, p. 497, 5½ pp., 6 ills.*

Describing a recently developed system of die casting, using dies consisting of interchangeable units, thereby reducing die costs and increasing production.

STEEL, 4-10-33

### Metallurgy of Future

*By R. S. Stouder, in Bulletin of the Colorado Society of Engineers, March, 1½ pp.*

An answer to the question: "What part will chemists play in the metallurgy of the future?" Comment is chiefly from the nonferrous standpoint.

STEEL, 4-10-33

### Structural Welding

*By Gilbert D. Fish, in Welding, March, p. 107, 4½ pp., 2 ills.*

Discussion of structural welding on railroads, pointing out how construction and maintenance of bridges, signal towers, tanks and buildings is an attractive potential field for arc welding.

STEEL, 4-10-33

### Rocking Electric Furnace

*Bulletin issued by Detroit Electric Furnace Co., Detroit, March 16, 8 pp., 1 ill., 16 photomics.*

Description is given of tests made to determine the effect upon the physical characteristics and structure of cast iron produced in a 1000-2500-pound rocking electric furnace in the plant of the Atlas Foundry Co., Detroit.

STEEL, 4-10-33

### Roll Grinding

*By H. J. Wills, in Machinery, April, p. 505, 3 pp.*

Fourth of a series of five articles giving complete directions for roll-grinding operations and wheel selection. This installment gives specific directions for the grinding of rubber rolls, Steckel-mill rolls, foil rolls and copper rolls for intaglio printing.

STEEL, 4-10-33

### Iron and Steel Literature

*Edited by E. H. McClelland, Carnegie Library of Pittsburgh, 27 pp., 140 references.*

Reprinted from *Blast Furnace and Steel Plant*, January-February, 1933, this bibliography presents a classified list of the more important books, serials and trade publications in which important articles on iron and steel were published during 1932.

STEEL, 4-10-33

### Automatic Machining

*By H. T. Smith, in American Machinist, March 1, p. 146, 2 pp., 3 ills.*

How a five-station automatic machine was adapted to do the work of five separate machines in machining a small shaft for automobile windshield wipers, reducing the time cycle to 6 seconds.

STEEL, 4-10-33

### Molybdenum in Cast Iron

*Issued by Climax Molybdenum Co., 295 Madison avenue, New York, 22 pp., illustrated; for looseleaf binding.*

This is the 1933 supplement to a similar booklet issued in 1931—*Molybdenum in Cast Iron*. Latest information on the applications of molybdenum in various types of cast iron is detailed.

STEEL, 4-10-33

# NEW EQUIPMENT

## PRODUCTION FABRICATION TREATMENT FINISHING

### Gasoline Tractor Is Sturdy In Construction

Lansing Co., Lansing, Mich., is manufacturing a gasoline tractor which is adaptable to a wide variety of industrial uses. The unit, shown herewith, is powered with a Ford model A engine. A feature is the short turning radius which allows it to be handled easily and maneuvered in congested places. Specifications include a 50½-inch wheelbase, speed forward 20 miles per hour, intermediate speed 10 miles per hour and low speed 5 miles.

*Lansing gasoline tractor designed with short turning radius*

Differential is of the bevel gear type with six gears, and a full floating type drive axle is employed. It consists of a single casting enclosing the worm gear, differential and bearings in an oil chamber. The worm drive is efficient and compact. Length overall of the four-wheel tractor is 6 feet, 10 inches; width 3 feet, 5 inches, and the weight is 3200 pounds. The twin front wheel model tractor has practically the same specifications as the four-wheel truck except that the front wheel construction reduces the turning radius to 66 inches.

◆

### Machine Cuts Materials Submerged in Bath

Andrew C. Campbell Inc., Bridgeport, Conn., is marketing a unique new machine for cutting materials such as metals, alloys, stone, asbestos, rubber, porcelain, glass, phenol resin, etc. Cutting is done by a thin wheel or disk rotating at high speed, with the piece immersed in a bath. The cut is clean and smooth, without glazing, burring or burning, and generally no further machining or finishing is needed on the cut face, it is claimed.

Immersion of the work in a bath during cutting does away with the need for a suction fan as there is no dust. The bath also increases the life of the cutting wheel. Cutting stroke is automatic and independent of the operator once the machine has been set. As the material is not visible to the operator, a pilot light indicates when the cut has been completed.

◆

### High-Speed Chain Hoist Is Light in Weight

David Round & Son, Henry street, Cleveland, is marketing a new high-speed chain hoist. Pulling the hand chain rotates the hand wheel and shaft, transmitting energy to the load wheel and chain through one oscillating external gear operating upon an eccentric and one internal gear made integral with load shaft. Ascending load is sustained by a positive acting ratchet and dog. The descending load is sustained by the same means with an auxiliary self-locking friction brake. Made in all capacities ½ to 20 tons inclusive.

◆

### New Small Stoker Embodies Distinctive Features

Combustion Engineering Corp., 200 Madison avenue, New York, has placed on the market an underfeed stoker suitable for application to both heating and industrial boilers in the approximate range of 40 to 150 developed boiler horsepower. Fuel feeding mechanism of the unit is of the ram or plunger type and comprises a main ram or pusher and auxiliary pushers, all mounted on a sliding plate which moves back and forth in the bottom of the retort.

### Announces Improved Spiral Gear Workhead

City Machine & Tool Works, East Third at June, Dayton, O., recently announced an improvement to its standard workhead which permits the chamfering of spiral or helical gears on a rapid and economical basis. Developed particularly for helical gears, this new unit is equally adaptable to spur gears and with a slight change can be applied to all No. 3 Peerless machines. With an antifriction bearing idler drive, the head can be adjusted quickly to meet the varying diameter gears.

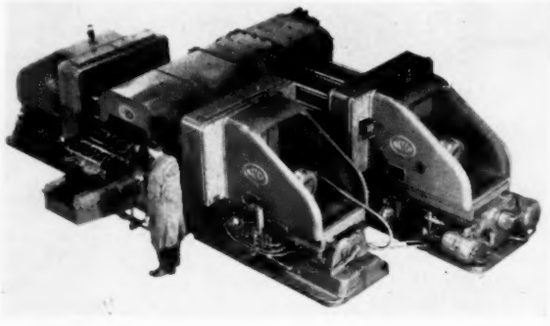
◆

### Drilling, Boring Unit Affords Increased Production

National Automatic Tool Co., Richmond, Ind., recently designed a special hydraulic feed drilling and boring machine, shown herewith, which performs the rough and finish boring operations on cam and crankshaft bearing holes. It also core drills and counterbores the welch plug holes of a six cylinder cast iron engine block.

The two front heads are mounted on 6-inch hydraulic units each arranged for 24-inch travel. Rear right hand head is mounted on an 8-inch hydraulic unit arranged with 42 inches of travel. The three large units are mounted against and bolted to a large welded steel pedestal upon which is mounted a 4-position automatic conveyor type fixture arranged to hold two cylinder blocks in each position.

While the heads are completing their cycles, the conveyor returns to the loading position and the operator again loads two cylinder blocks and the machine again is ready for another cycle. Approximate production is 75 cylinder blocks per hour.



*HYDRAULIC feed drilling and boring machine developed by National Automatic Tool Co. Fixture is operated by hydraulic pressure and is interlocked electrically to the heads to insure that engine blocks are in correct position before heads begin operating*

# Pig Iron, Scrap Sales Heavier; Prices Strengthen

## American Radiator and Others Close for Iron; 200,000 Tons of Scrap Taken—Ingot Rate Up 2 Points—Automotive, Miscellaneous Needs Broaden

HEAVIER purchasing of pig iron and scrap, in some instances covering leading consumers' requirements for the remainder of the year, accompanied by a strengthening of the raw-material price structure, features the iron and steel markets.

Not only is the volume of orders larger than recently when fears of price inflation started a moderate buying movement, but shipments also have been increased substantially.

Lack of a surplus of iron and steel scrap in the Middle West, and in the East where there have been heavy drains for export, has led to large sales. The Southern Railway's offering of 200,000 tons, which was available for more than two years, has been absorbed by a syndicate of dealers, 89,000 tons going to a West Virginia steelmaker, and some of the remainder for export.

Following the American Radiator & Standard Sanitary Corp.'s purchase of its pig iron requirements for this year, and the sale of 15,000 tons of gray forge iron to an eastern Pennsylvania foundry, pig iron prices display a much firmer tone. Pittsburgh and valley furnaces are stabilizing prices, with bessemer up 50 cents a ton. Cleveland furnaces have raised their prices 50 cents for outside delivery. Scrap prices are up 50 cents to $1 at Pittsburgh.

Finished steel has participated in less spectacular manner, but broadening consumption in miscellaneous manufacturing industries, and to a larger extent by automobile builders, has lifted steel ingot production for the week 2 points to 17½ per cent. More important gains are noted in finishing mills in the Pittsburgh, Youngstown, Cleveland and Chicago districts. Tin plate production is up 5 points to 45 per cent.

Despite the sharp curtailment in consumption in March imposed by banking restrictions, steel ingot output for the month, averaging 32,812 gross tons daily in comparison with 44,378 tons for February, did not reach the low points of last July, August or December. Similarly, complete reports for March pig iron verify STEEL's statement that production did not break through last year's low, although the number of stacks active at the close of the month, 38, was three less than on Aug. 31.

Automotive production apparently has bridged the gap caused by the bank moratorium, schedules having been increased by the leading manufacturers, with prospects that the number of cars to be made this month will approximate that of last January, when the industry was preparing for spring sales. Seasonal production of refrigerators and other household equipment, and slow but gradual expansion in brewery requirements also contribute largely to current steel requirements.

Railroads, awaiting the government's program, are not active in the market. Their rail purchases in the 15 years up to 1930 averaged 2,500,000 tons annually; for 1932 they dropped to 500,000 tons; for this year practically nothing has been purchased. Structural steel awards for the week, down to 8545 tons, also reflect the suspension of government projects.

Steel pipe shipments to southeastern fields have been sharply reduced by production holidays and restrictions on drilling. The largest municipal pipe purchase in months has been closed by Chicago, 9910 tons of cast.

Prices generally exhibit a stronger trend. The reported $2 a ton advance in galvanized sheets, however, has not been put in effect. Platemakers have issued a new card of extras, mainly for normalizing and cutting.

STEEL's iron and steel scrap composite has advanced for the fourth consecutive week, 13 cents to $6.71; the finished steel composite remains $44.90; and the iron and steel composite is up 2 cents on adjustments in pig iron.

## Composite Market Averages

| | April 8 | April 1 | One Month Ago March, 1933 | Three Months Ago Jan., 1933 | One Year Ago April, 1932 | Ten Years Ago April, 1923 |
|---|---|---|---|---|---|---|
| Iron and Steel Composite | $28.14 | $28.12 | $28.35 | $28.68 | $29.75 | $47.01 |
| Finished Steel Composite | 44.90 | 44.90 | 45.60 | 46.13 | 47.62 | 66.88 |
| Steelworks Scrap Composite | 6.71 | 6.58 | 6.47 | 6.23 | 7.76 | 22.95 |

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars, and black pipe. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

# COMPARATIVE PRICES OF IRON, STEEL AND COKE

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

| | April 8, 1933 | Mar. 1933 | Jan. 1933 | Apr. 1932 |
|---|---|---|---|---|
| **Pig Iron** | | | | |
| Bessemer, del. Pittsburgh | $16.26 | 15.76 | 15.76 | 16.76 |
| Basic, valley | 14.00 | 14.00 | 14.00 | 15.00 |
| Basic, eastern, del. eastern Pa. | 14.19 | 13.50 | 13.50 | 15.00 |
| No. 2 foundry, del. Pittsburgh | 15.76 | 15.76 | 15.76 | 16.26 |
| No. 2 foundry, Chicago | 15.50 | 15.50 | 15.50 | 16.00 |
| *Southern No. 2, Birmingham | 11.00 | 11.00 | 11.00 | 11.00 |
| **No. 2X, Virginia furnace | 17.75 | 17.75 | 17.75 | 18.00 |
| **No. 2X, Eastern, del., Phila. | 14.51 | 13.76 | 13.76 | 15.66 |
| Malleable, valley | 14.50 | 14.50 | 14.50 | 15.50 |
| Malleable, Chicago | 15.50 | 15.50 | 15.50 | 16.00 |
| Lake Superior charcoal, del. Chi. | 23.04 | 23.04 | 23.04 | 23.04 |
| Gray forge, del. Pittsburgh | 15.63 | 15.63 | 15.63 | 16.13 |
| Ferromanganese, del. Pittsburgh | 73.24 | 73.24 | 73.24 | 80.24 |

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

| | | | | |
|---|---|---|---|---|
| **Coke** | | | | |
| Connellsville, furnace, ovens | 1.75 | 1.75 | 1.75 | 2.25 |
| Connellsville, foundry, ovens | 2.25 | 2.25 | 2.50 | 3.25 |
| **Semifinished Material** | | | | |
| Sheet bars, open-hearth, Youngs. | 26.00 | 26.00 | 26.00 | 26.00 |
| Sheet bars, open-hearth, Pitts. | 26.00 | 26.00 | 26.00 | 26.00 |
| Billets, open-hearth, Pittsburgh | 26.00 | 26.00 | 26.00 | 27.00 |
| Wire rods, Pittsburgh | 35.00 | 35.00 | 36.20 | 37.00 |

| | April 8, 1933 | Mar. 1933 | Jan. 1933 | Apr. 1932 |
|---|---|---|---|---|
| **Finished Material** | | | | |
| Steel bars, Pittsburgh | 1.60 | 1.60 | 1.60 | 1.60 |
| Steel bars, Chicago | 1.70 | 1.70 | 1.70 | 1.70 |
| Steel bars, Philadelphia | 1.91 | 1.91 | 1.91 | 1.91 |
| Iron bars, Chicago | 1.65 | 1.65 | 1.65 | 1.70 |
| Shapes, Pittsburgh | 1.60 | 1.60 | 1.60 | 1.60 |
| Shapes, Philadelphia | 1.65 | 1.65 | 1.70 | 1.75 |
| Shapes, Chicago | 1.70 | 1.70 | 1.70 | 1.70 |
| Tank plates, Pittsburgh | 1.60 | 1.60 | 1.60 | 1.60 |
| Tank plates, Philadelphia | 1.54½ | 1.59½ | 1.66 | 1.79½ |
| Tank plates, Chicago | 1.70 | 1.70 | 1.70 | 1.70 |
| Sheets, No. 10 blue anneal., Pitts. | 1.55 | 1.55 | 1.65 | 1.70 |
| Sheets, No. 24, hot ann., Pitts. | 2.00 | 2.00 | 2.05 | 2.20 |
| Sheets, No. 24 galvan., Pitts. | 2.60 | 2.60 | 2.70 | 2.85 |
| Sheets, No. 10 blue anneal., Chi. | 1.70 | 1.70 | 1.85 | 1.85 |
| Sheets, No. 24 hot ann., Chicago | 2.15 | 2.15 | 2.25 | 2.35 |
| Sheets, No. 24 galvan., Chicago | 2.75 | 2.75 | 2.85 | 3.00 |
| Plain wire, Pittsburgh | 2.10 | 2.10 | 2.15 | 2.20 |
| Wire nails, Pittsburgh | 1.85 | 1.85 | 1.90 | 1.95 |
| Tin plate, per base box, Pitts. | 4.25 | 4.25 | 4.25 | 4.75 |
| **Scrap** | | | | |
| Heavy melting steel, Pitts. | $9.75 | 8.75 | 8.35 | 10.20 |
| Heavy melting steel, eastern Pa. | 6.50 | 6.50 | 6.50 | 7.20 |
| Heavy melting steel, Chicago | 5.25 | 5.25 | 5.25 | 6.55 |
| No. 1 wrought, eastern Pa. | 7.00 | 6.75 | 6.50 | 7.95 |
| No. 1 wrought, Chicago | 5.00 | 5.00 | 5.00 | 5.85 |
| Rails for rolling, Chicago | 8.25 | 7.85 | 8.05 | 8.90 |

# Sheets

## Auto Demand Puts Mill Operations Up—Prices Steadier, Though Galvanized Rise Fails

SHEET PRICES, PAGE 35

**Pittsburgh**—Orders for sheets declined somewhat last week following the bulge of specifications ten days ago before first quarter closed. However, the decline was not so marked as might have been anticipated. Among specifications were some for light cold-rolled sheets, one order in particular from a leading automobile maker being placed at a full 2.30c, Pittsburgh, base. Galvanized sheets are firmer at 2.60c, Pittsburgh, with irregularities still confined to a few instances where jobber relations with supplying mills have not been entirely ironed out. Sheet production has expanded slightly and at an average of around 20 per cent is up almost four points. Prices on the other leading sheet classifications are holding, black remaining 2.00c base, Pittsburgh, and blue annealed 1.55c. Bids will be opened late this week at Harrisburg, Pa., for the state's 1934 license tag requirements.

**Chicago**—The sheet market is maintaining recent gains and mill operations hold at 30 to 35 per cent. Automotive releases are increasing gradually, while miscellaneous consumers are supplying fair tonnages. The proposed advance of $2 a ton on galvanized sheets has yet to be made effective, although some decision is expected soon.

**Cleveland**—Automotive sheet releases, mainly from Chevrolet, Ford and Chrysler, continue on the upgrade, maintaining sheet mill production here and in nearby territory at 30 to 40 per cent. A broader, miscellaneous demand is developing, including that from manufacturers of household equipment and barrels. The market displays a firmer tendency, fewer "inside" prices below quoted schedules coming to light. An inquiry for 600 tons of barrel stock, for example, brought out firm quotations. Sellers here at no time went above 2.60c, base, Pittsburgh, for galvanized, despite a reported contemplated advance of $2 at Pittsburgh, and continue booking for second quarter on this basis.

**Boston**—Spot buying and specifications against sheet contracts continue light, but show a slight gain. Covering for second quarter has been conservative.

**New York**—As most sheet consumers specified rather freely against contracts at old prices at the close of last quarter, the trade is not surprised that trading the past 10 days has fallen off sharply. Not in all cases did consumers specify against protections, but those who did not were in the minority, and as a result of releases at the close of the quarter, some sellers experienced the best period in months.

**Philadelphia**—Following the improved activity of a week ago, at which time a fairly good tonnage was specified against old prices, sheet buying has slowed up. The new prices await the test of further tonnage.

**Cincinnati**—Production schedules of sheet mills in this district were stepped up to the best rate this year on an influx of orders from general manufacturing lines showing seasonal expansion.

**St. Louis**—General conditions considered, producers and distributors of sheets are well satisfied. Prominent among recent buyers are warehouse and jobbing interests, whose stocks had been allowed to dwindle below the safety line, and with a revival in demand they have been replenishing. Automotive releases betterment is looked for this month. The movement of galvanized material to southern users is heavier.

**Birmingham, Ala.** — Production and shipments of sheets remain about the same as the past few weeks. Agricultural districts are expected to return to the market shortly for repair material.

# CURRENT FINISHED STEEL PRICES

*Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week*

## Sheet Steel

HOT ROLLED No. 10
(24 to 48 inches wide)

| | |
|---|---|
| Pittsburgh, base.. | 1.40c |
| Chi. dist. mills..... | 1.50c |
| Chicago, del. ..... | 1.55c |
| New York, del..... | 1.75c |
| Birm., base ..... | 1.55c |
| Philadelphia, del... | 1.71c |

BLUE ANNEALED No. 9-10

| | |
|---|---|
| Pittsburgh, base.. | 1.55c |
| Chi. dist. mills ..... | 1.65c |
| Chicago, del ..... | 1.70c |
| Phila., del. ..... | 1.86c to 1.96c |
| New York, del..... | 1.90c to 2.00c |
| St. Louis, del. ..... | 1.89c |
| Birm., base ..... | 1.70c |
| San Fran., c.i.f..... | 2.32½c |

HOT ROLLED ANNEALED
No. 24

| | |
|---|---|
| Pittsburgh, base.. | 2.00c |
| Chi. dist. mills.... | 2.10c |
| Chicago, del. ..... | 2.15c |
| New York, del..... | 2.35c |
| Phila., del. ..... | 2.31c |
| Birmingham, base | 2.15c to 2.25c |
| St. Louis, del. ..... | 2.34c |
| San Fran., c.i.f..... | 2.85c |
| Detroit, del. ..... | 2.18½c |

GALVANIZED No. 24

| | |
|---|---|
| Pittsburgh, base.. | 2.60c |
| Chi. dist. mills..... | 2.70c |
| Chicago, del. ..... | 2.75c |
| Philadelphia, del.. | 2.91c |
| New York, del..... | 2.95c |
| Birm., base ..... | 2.75c |
| St. Louis, del. ..... | 2.94c |
| San Fran., c.i.f..... | 3.50c |

TIN MILL BLACK No. 28

| | |
|---|---|
| Pittsburgh, base.. | 2.30c |
| Gary, base ..... | 2.40c |
| St. Louis, del. ..... | 2.64c |

HEAVY COLD ROLLED
No. 10

| | |
|---|---|
| Pittsburgh, base.. | 1.90c |
| Chi. dist. mills..... | 2.00c |
| Chicago, del. ..... | 2.05c |
| Philadelphia, del.. | 2.21c |
| New York, del..... | 2.25c |

COLD ROLLED No. 20

| | |
|---|---|
| Pittsburgh, base.. | 2.30c |
| Do, autob. qual. | 2.55c |
| Do, furn. qual. | 2.90c |
| Chi. dist. mills .... | 2.40c |
| Chicago, del. ..... | 2.50c |
| Philadelphia, del.. | 2.61c |
| New York, del. .... | 2.65c |

## Corrosion, Heat Resistant Alloys

Base, Pittsburgh

18% chrome, 8% nickel sheets, 35c; plates, 31c; bars, 28c.

| | A | B | C | D |
|---|---|---|---|---|
| Bars ..... | 19c | 20.5c | 23c | 28c |
| Plates .... | 21c | 22.5c | 25c | 30c |
| Sheets .... | 26c | 27.5c | 30c | 35c |
| Hot Strip | 19c | 20.5c | 23c | 28c |
| Cold Strip | 25c | 26.5c | 29c | 34c |

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

## Steel Plates

| | |
|---|---|
| Pittsburgh, base.. | 1.60c |
| New York, del..... | 1.60c to 1.70c |
| Phila., del. ..... | 1.49½ to 1.59½ |
| Boston, del. ..... | 1.82c to 2.02c |
| Buffalo, del. ..... | 1.85½c |
| Chicago, base ..... | 1.70c |
| Cleveland, del. .... | 1.78½c |
| Birmingham, base | 1.75c |
| Coatesville, base.. | 1.40c to 1.50c |
| Pacific Coast, c.i.f. | 2.00c |
| St. Louis, del. .... | 1.94c |

## Structural Shapes

| | |
|---|---|
| Pittsburgh, base.. | 1.60c |
| Philadelphia, del... | 1.65c to 1.75c |
| New York, del. .... | 1.77c to 1.87c |
| Boston, del. ....1.90½c to 2.00½c | |
| Chicago, base ..... | 1.70c |
| Cleveland, del..... | 1.78½c |
| Lackawan., base.. | 1.70c |
| Birmingham, base | 1.75c |
| Pacific Coast, c.i.f. | 2.10c |
| Do., wide flange | 2.20c |

## Bars

SOFT STEEL

| | |
|---|---|
| Pittsburgh, base.. | 1.60c |
| Chicago, base ..... | 1.70c |
| Birmingham, base | 1.75c |
| Lackawan., base.. | 1.70c |
| Pacific Coast, c.i.f. | 2.00c |
| Cleveland, base.... | 1.65c |
| Philadelphia, del.. | 1.91c |
| New York, del..... | 1.95c |
| Boston, del. ..... | 2.02c |
| Pitts., cold finish.. | 1.70c |
| Pitts., forg. qual..1.75c and | 1.85c |
| San Fran., c.i.f..... | 2.10c |

RAIL STEEL

| | |
|---|---|
| Pitts., Buff., Chi., St. Louis ..... | 1.30c |
| Eastern mills ..... | 1.30c |

IRON

| | |
|---|---|
| Chicago, base ..... | 1.60c to 1.65c |
| New York, del..... | 1.85c to 1.90c |
| Philadelphia, del... | 1.81c to 1.86c |
| Pitts., refined..... | 2.70c to 4.20c |

REINFORCING

| | |
|---|---|
| Billet, mill l'gths. Chi., Pitts., Buff. | 1.40c |
| Do Cleveland.. | 1.45c |
| Do Detroit ..... | 1.60c |
| Chicago, rail steel | 1.30c |
| Phila., cut lengths | 1.86c |

## Wire Products

(Prices apply on carload lots. Mixed carloads 10 cents higher with 10% discount off extras; joint carloads 10 cents higher with no discount from extras; pool carloads 20 cents up; less carloads 30 cents up.)

F.o.b. mills, 100 lb. keg

| | |
|---|---|
| Standard wire nails..... | $1.85 |
| Cement coated nails ..... | 1.85 |
| Galvanized nails ..... | 3.35 |

(Per pound)

| | |
|---|---|
| Polished staples ..... | 2.55c |
| Galvanized fence staples.. | 2.80c |
| Barbed wire, gal. ..... | 2.35c |
| Annealed fence wire ..... | 2.25c |
| Galvanized wire ..... | 2.60c |
| Woven wire fencing (base column, c.l.)..... | $50.00 |

(To Manufacturing Trade)

| | |
|---|---|
| Plain wire, 6-9 ga. | 2.10c |
| Spring wire ..... | 3.10c |

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

## Cold-Finished Bars

Base Pitts., one size, shape, grade, shipment at one time to one destination

| | |
|---|---|
| 10,000 to 19,999 lbs..... | 1.70c |
| 20,000 to 59,999 lbs..... | 1.65c |
| 6,000 to 99,999 lbs..... | 1.60c |
| 100,000 lbs. and over....1.57½c | |

Chicago, Cleveland, Buffalo 5c higher; Detroit, 20c; eastern Michigan 25c.

## Tin and Terne Plate

Per 100-lb. box, Pittsburgh

| | |
|---|---|
| Tin plate, coke base, contract.. | $4.25 |
| Do., stock ..... | 3.75 |
| Long ternes, No. 24 unassorted .... | 2.75c |

Gary base, 10 cents higher.

## Alloy Steel

Hot rolled, f.o.b. Pittsburgh, Buffalo, Chicago and Massillon, O. Base 2.45c to 2.65c. Differentials to various classes of consumers.

| S.A.E. | Alloy Diff. | S.A.E. | Alloy Diff. |
|---|---|---|---|
| 2000 | 0.25 | 3100 | 0.55 |
| 2100 | 0.55 | 3200 | 1.35 |
| 2300 | 1.50 | 3300 | 3.30 |
| 2500 | 2.25 | 3400 | 3.20 |

| | |
|---|---|
| 4100 .15 to .25 Mo. ..... | 0.50 |
| 4600 .20 to .30 Mo. 1.25-1.75 Ni. ..... | 1.05 |
| 5100 .80-1.10 Cr. ..... | 0.45 |
| 5100 Cr. spring ..... | 0.20 |
| 6100 bars ..... | 1.20 |
| 6100 spring ..... | 0.95 |
| Cr., Ni., Van. ..... | 1.50 |
| Carbon van. ..... | 0.95 |
| 9250 (flats) ..... | 0.25 |
| 9250 (rds., sq.) ..... | 0.50 |

## Strip, Hoops, Bands

| | |
|---|---|
| Hot-rolled strip up to 23 15/16-in. wide, Pitts.. | 1.45c |
| Do., Chicago .... | 1.55c |
| Do., del. Phila... | 1.76c |
| Do., del. N. Y. | 1.80c |
| Cooperage hoop, Pittsburgh ..... | 1.55c to 1.60c |
| Do., Chicago .... | 1.65c to 1.70c |
| Cold-rolled strip, Pitts., Cleve. .... | 1.80c to 2.00c |
| Worcester, 3 tons or over ..... | 2.10c |

## Rails, Track Material

| | |
|---|---|
| Stand. rails, mill | $40.00 |
| Relaying rails, Pitts., 20-45 lbs. | $20.00 to 22.00 |
| 50 to 75 ..... | $16.00 to 18.00 |
| 80 to 100 ..... | $20.00 to 21.00 |
| Light rails, 25-45, mills ..... | $30.00 |
| Light rails, Chi.... | $32.00 |
| Angle bars, mills.. | 2.55c |
| Spikes, R. R. mills | 2.15c |
| Spikes, boat, b'ge, Pitts. ..... | 2.65c |
| Track bolts, Chi... | 3.50c |
| Do., stand., job. | 73 off list |
| Tie plates, Pitts. | $35.00 |
| Tie plates, Chi.... | $35.00 |

## Rivets, Wrought Washers

| | |
|---|---|
| Struc., c.l., Pitts.-Cleve. ..... | 2.25c |
| Struc., c.l., Chi..... | 2.35c |
| 7/16-in. & smaller, Pitts., Chi., Cleve. .....70, 10 and 10 off | |
| Washers, c.l., Pitts. dist. ..... | 6.50 to 6.75 off |
| Do., Chi. dist.... | 7.25 to 7.00 off |

## Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to Dec. 1, 1932, lists.

CARRIAGE BOLTS

| | |
|---|---|
| All sizes, cut thread..... | 75 off |
| Rolled thread ½ x 6 and smaller ..... | 75 off |
| Eagle list ..... | 75 off |

MACHINE BOLTS

| | |
|---|---|
| All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... | 75 off |
| Tire bolts .....60 and | 10 off |

Stove bolts, 75, 25 and 10 off in pkgs.; 86 off in bulk, 5000 or more of a size.

Rolled thread machine bolts, ½ x 6 and smaller 75 off.

NUTS

| | |
|---|---|
| Semifinished ..... | 75 off |

HEXAGON CAP SCREWS

| | |
|---|---|
| Milled .....85-10 off | |
| Upset 1-in. diam., smaller ..... | 85-10 off |

SQUARE HEAD SET SCREWS

| | |
|---|---|
| Upset, 1-in., smaller | 75-10-10 off |
| Headless set screws..... | 80 off |
| Upset, larger than 1-in.... | 80 off |

## Cut Nails, Piling

| | |
|---|---|
| Cut nails, c.l., Pitts..... | $2.50 |
| Do., less carloads, 5 kegs or over ..... | $2.90 |
| Less than 5 kegs ..... | $3.05 |
| Steel sheet piling, Pitts... | 1.90c |

## Pipe and Tubing

Base $200 net ton, except on standard commercial seamless boiler tubes under 2 inches and cold drawn seamless tubing.

### Welded Iron, Steel Pipe

Base discounts on steel pipe, Pittsburgh and Lorain, O., to consumers in carloads, Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago delivered, 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD
Steel

| In. | Blk. | Gal. |
|---|---|---|
| ¼ and ⅜ ..... | 60½ | 42 |
| ½ ..... | 65½ | 54 |
| ¾ ..... | 69 | 59 |
| 1—3 ..... | 71 | 62 |

Iron

| | | |
|---|---|---|
| ⅛ ..... | 28 | 10½ |
| ¼ ..... | 33 | 16½ |
| 1—1¼ ..... | 36 | 20½ |
| 2 ..... | 38 | 21 |

LAP WELD
Steel

| | | |
|---|---|---|
| 2 ..... | 66 | 57 |
| 2½ to 6 ..... | 69½ | 60½ |
| 7 and 8 ..... | 68 | 58 |
| 9 and 10 ..... | 67 | 57 |
| 11 and 12 ..... | 66 | 56 |

Iron

| | | |
|---|---|---|
| 2 ..... | 26 | 12½ |
| 2½—3½ ..... | 33 | 18½ |
| 4—6 ..... | 35 | 22 |
| 7—8 ..... | 34 | 21½ |
| 9—12 ..... | 31 | 16½ |

*(Please turn to next page)*

### STEEL LINE PIPE

| Steel | |
|---|---|
| 1 to 3 butt | 70 |
| 2 lap | 65 |
| 10 lap | 66 |
| **Iron** | |
| 2½ to 6 lap | 63½ |
| 8 lap | 61 |
| 12 lap | 58 |

Discounts on steel and iron pipe are net.

### BOILER TUBES

*Carload discounts, f.o.b. Pittsburgh*

| *Lap Welded Steel* | | *Charcoal Iron* | |
|---|---|---|---|
| 2—2¼ | 38 | 1¾ | 8 |
| 2½—2¾ | 46 | 2—2¼ | 13 |
| 3 | 52 | 2½—2¾ | 16 |
| 3¼—3¾ | 54 | 3 | 17 |
| 4 | 57 | 3¾—3½ | 18 |
| 4½—6 | 46 | 4 | 20 |
| 1½ | 1 | 4½ | 21 |

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Quantity discounts same as for hot rolled, below. Charcoal Iron—Under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

### STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

| | | | |
|---|---|---|---|
| 1 inch | 61 | 3 | 46 |
| 1¼—1½ | 53 | 3¼—3½ | 48 |
| 1¾ | 37 | 4 | 51 |
| 2—2¼ | 32 | 4½, 5, 6 | 40 |
| 2½—2¾ | 40 | | |

HOT ROLLED

| | | | |
|---|---|---|---|
| 2—2¼ | 38 | 3¼—3½ | 54 |
| 2½—2¾ | 46 | 4 | 57 |
| 3 | 52 | 4½, 5, 6 | 46 |

Quantity discounts are: Under 10,000 pounds, 10 points and 5 per cent; 10,000 to 24,999 pounds, 6 points and 5 per cent; 25,000 pounds to carload, 2 points and 5 and 5 per cent; carload and over, base discount and 5 and 5 per cent. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

## Seamless Tubing

*Cold drawn; f.o.b. mill discounts*

100 ft. or 150 lbs. ..... 40%
15,000 ft. or 22,500 lbs. ..... 70%

## Cast Iron Water Pipe

*Class B Pipe—Per Net Ton*

6-in. & over, Birm. ... $32.00-33.00
4-in. Birm. ..... 35.00-36.00
4-in. Chicago ..... 43.40-44.40
6 to 24-in. Chicago .. 40.40-41.40
6-in. & over, N. Y. ... 32.00-34.50
4-in. New York ..... 34.50-36.50

Class A pipe $3 higher than Class B.

Stand. fitgs., Birm. base ... $90.00

Six to 24-inch, fittings, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

# RAW MATERIAL PRICES

*Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4, 1932. Asterisk denotes price change this week*

## Pig Iron

*Per Gross Ton*

FOUNDRY, No. 2

| | |
|---|---|
| Chicago, furnace .... | $15.50 |
| Pitts., dist. fur. ..... | 15.00 |
| Pittsburgh, del. ..... | 15.63-16.13 |
| *Valley furnace ..... | 14.50 |
| Cleve. fur., local del. | 15.00 |
| Philadelphia del..... | 14.26 |
| Virginia furnace.... | 17.25 |
| Granite City, Ill..... | 16.50-17.00 |
| Buff., fur., local del. | 16.00 |
| Buff., all-rail, Bost. | 18.91-19.91 |
| Do, Brooklyn ..... | 18.90 |
| Do, Newark ..... | 17.28 |
| Ala., Bir. fur., local | 11.00 |
| Ala., Nor. del., Bir. | 10.00 |
| Ala., del. Chicago.... | 16.01 |
| Ala., del. St. Louis.. | 14.42 |
| Ala., del. Cincinnati | 13.82 |
| Ala., Phila., dock del. | 15.00-15.25 |
| Ala., Balt., dock del. | 15.00 |
| Ala., N. Y. dock..... | 15.50 |
| Ala., Bost. dock del. | 15.75-16.75 |
| Tenn., Bir. base..... | 13.00 |
| Tenn., del. Cinci..... | 13.82 |
| Montreal, del. ..... | 23.00-23.50 |
| Toronto, del. ..... | 22.10 |

FOUNDRY, No. 2X

| | |
|---|---|
| Buff., fur., local del. | 16.50 |
| Buff., all-rail, Brook. | 19.40 |
| Do, Newark ..... | 17.78 |
| Buff., all-rail, Bost. | 19.91-20.91 |
| Virginia furnace.... | 17.75 |
| Eastern, del. Phila. | 14.51 |

FOUNDRY, No. 1X

| | |
|---|---|
| Buff. fur., loc. del... | 17.50 |
| Eastern, del. Phila. | 14.76 |

MALLEABLE

| | |
|---|---|
| *Valley furnace ..... | 14.50 |
| Cleve. fur., loc. del... | 15.00 |
| Pittsburgh dis. fur.. | 15.00 |
| Pittsburgh, del. ..... | 15.63-16.13 |
| Chicago, furnace.... | 15.50 |
| Buff., fur., loc. del. | 16.50 |
| Eastern Pa., del..... | 15.13-18.91 |
| Granite City, fur... | 16.50-17.50 |
| Montreal, del. ..... | 24.00 |
| Toronto, delivered.. | 22.60 |

BASIC

| | |
|---|---|
| Pitts., dist. fur. ..... | 14.00 |
| Pittsburgh, del. ..... | 14.63-15.13 |
| Eastern Pa., del..... | 14.00-14.25 |
| Buff. fur., loc. del... | 15.50-16.00 |
| Montreal, del. ..... | 23.50 |
| Valley, furnace ..... | 14.00 |

BESSEMER

| | |
|---|---|
| *Valley furnace..... | 15.00 |
| *Pittsburgh fur. .... | 15.50 |
| *Pittsburgh, del. .... | 16.13-16.63 |

LOW PHOS.

| | |
|---|---|
| Valley, fur., stand. | 25.00 |
| Phila., standard ..... | 22.76-25.79 |
| Copper bear., E. Pa. furnace ..... | 20.50-21.50 |

GRAY FORGE

| | |
|---|---|
| *Valley furnace..... | 14.50 |
| Pitts. dist. fur. ..... | 15.00 |
| Pittsburgh, del. ..... | 15.63-16.13 |

CHARCOAL

| | |
|---|---|
| Lake Sup., del. Chi. | 23.04 |

SILVERY

Jackson County, O., fur. 6%—$18.00; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19; 15—$21 to $23.

BESSEMER FERROSILICON

Jackson County, O., fur., 10%—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

## Iron Ore

LAKE SUPERIOR ORE

*Gross ton, 51½%, Lower Lake Ports*

| | |
|---|---|
| Old range bess. ..... | $4.80 |
| Mesabi bessemer.... | 4.65 |
| Old range nonbess. | 4.65 |
| Mesabi nonbess. .... | 4.50 |
| High phosphorus.... | 4.40 |

EASTERN LOCAL ORES

*Cents, unit, del. E. Pa.*

| | |
|---|---|
| Foundry and basic, 56-63%, con. (nom.) | 7.50 |
| Copper-free low phos. 58-65%..... | nom. |

FOREIGN ORE

*Cents per unit, f.a.s. Atlantic ports (nom.)*

| | |
|---|---|
| Foreign manganiferous ore, 45-55% iron, 6-10% man. | 8.00 |
| No. Afr. low phos... | 7.00 |
| Swedish basic, 65% | 7.50- 8.00 |
| Swedish low phos... | 8.00 |
| Spanish, No. Afr. basic, 50 to 60%.. | 7.00 |
| Tungsten, spot, sh. ton unit, duty pd. | $9.65- 9.90 |
| N. F. fdy., 55%..... | 7.00 |
| Chrome ore, 48% gross ton c.i.f..... | $15.50-16.50 |

## Manganese Ore

*(Nominal)*

Prices, not including duty, cents per unit, cargo lots.

| | |
|---|---|
| Caucasian, 52-55%.. | nominal |
| So. African, 52%.... | 18 to 19 cts. |
| So. Afr., 49-51%.... | nominal |
| Indian, 48-50% ..... | nominal |

## Refractories

FIRE CLAY BRICK

*Per 1000 f.o.b. Works*

*First Quality*

| | |
|---|---|
| Pa., Ohio, Ill., Ky., Md., Ga., Ala..... | $35.00 |
| Missouri ..... | 32.00 |

*Second Quality*

| | |
|---|---|
| Pa., Ohio, Ill., Ky., Md. ..... | 25.00-30.00 |
| Missouri ..... | 26.00 |
| Georgia, Alabama.... | 30.00 |

SILICA BRICK

| | |
|---|---|
| Pennsylvania ..... | $35.00 |
| Joliet, E. Chicago.... | 47.00 |
| Birmingham, Ala..... | 50.00 |

MAGNESITE BRICK

*Per Net Ton*

| | |
|---|---|
| Burned, 9 x 4½ x 2½ ..... | $61.50 |
| Unburned, 9 x 4½ x 2½ ..... | 52.00 |

CHROME BRICK

*Per Net Ton*

| | |
|---|---|
| F.o.b. ship. point.... | $42.50 |

MAGNESITE

| | |
|---|---|
| Dead burned grain, net ton, Chester, Pa., or Baltimore bases ..... | 38.00 |
| Domes, Chewelah, Wash., base ..... | 20.90 |

## Fluorspar

*85 to 5 per cent grade*

| | |
|---|---|
| Washed gravel, f.o.b. Ill., Ky., net ton, carloads ..... | $10.50 |
| Washed gravel, import duty paid tide, gross ton..... | 16.50 |

## Semifinished Steel

*Prices Per Gross Ton*

BILLETS AND BLOOMS

*4 x 4-inch base*

| | |
|---|---|
| Pitts., Chi., Cleve., open-hth. & bess. | $26.00 |
| Philadelphia ..... | 31.75 |
| Forging, Pitts., Chi. | 31.00 |

SHEET BARS

| | |
|---|---|
| Pitts., Cleve., Yong. | 26.00 |
| Chicago ..... | 26.00 |

SLABS

| | |
|---|---|
| Pitts., Cleve., Yong. | 26.00 |

WIRE RODS

| | |
|---|---|
| Pitts., Cleveland .... | $35.00 |
| Chicago ..... | 36.00 |

SKELP

| | |
|---|---|
| All grades, Pitts..... | 1.50c-1.60c |

## Coke

*Prices Per Net Ton*

BEEHIVE OVENS

| | |
|---|---|
| Connellsville fur..... | $1.75 |
| Connellsville fdry... | 2.25- 2.50 |
| Connell. prem. fdry. | 4.00 |
| New River fdry..... | 6.00 |
| Wise county fdry... | 4.25- 5.00 |
| Wise county fur..... | 3.50- 4.25 |

BY-PRODUCT FOUNDRY

| | |
|---|---|
| Newark, N. J., del... | 8.21- 8.81 |
| Chi. ov., outside del. | 7.00 |
| Chicago, del. ..... | 7.75 |
| New England, del... | 10.00 |
| St. Louis, del. ..... | 7.75 |
| Birmingham, ovens | 4.00 |
| Indianapolis, del..... | 7.75 |
| Ashland, Ky., ovens, Connell., basis .... | 4.50 |
| Portsmouth, ovens Connell. basis .... | 4.50 |
| Buffalo, ovens ..... | 7.50- 8.00 |
| Detroit, ovens ..... | 8.00 |
| Philadelphia, del..... | 8.50 |

## Ferroalloys

*(In dollars, except Ferrochrome)*

| | |
|---|---|
| Ferromanganese, 78-82% tidewater, duty pd. (con.).... | ‡$68.00 |
| del. Pitts. (con.).. | ‡73.24 |
| Spiegeleisen, 19-20%, dom. fur., spot†.. | 24.00 |
| Ferrosilicon, 50%, freight all., c. l..... | 74.50 |
| Do, less carload.. | 82.50 |
| Do, 75 per cent..... | 120-130.00 |
| Spot, $5 a ton higher. | |
| Silicomang., 2½ carb. | 85.00 |
| 2% carbon ..... | 90.00 |
| 1% carbon ..... | 100.00 |
| Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. con. del. ..... | 9.50 |
| Do, spot del. ..... | 10.00 |
| Ferrotungsten, stand., lb. cont..... | 0.94- 1.00 |
| Ferrovanadium, 35 to 40%, lb. cont., an analysis ..... | 2.60- 2.80 |
| Ferrotitanium, c.l., prod. plant, frt. allow., net ton | 137.50 |
| Spot, 1 ton, frt., all., lb. ..... | 8.50 |
| Do, under 1 ton.... | 9.00 |
| Ferrophosphorus, per ton, c. l. 17-19%, Rockdale, Tenn.. basis; 18%, $2 unitage.. | 50.00 |
| Ferrophosphorus, electrolytic per ton c. l., 23-26% f.o.b. Anniston, Ala.; 24%, $2.75 unitage ..... | 65.00 |
| Ferromolybdenum, stand. 50-60%, lb. | 0.95 |
| Molybdate, lb. cont. | 0.80 |

†Carloads. Diff. to apply to quantity. ‡Spot, $7 less.

# Bars

## Automotive Users Increase Orders but Other Buyers Take Only Small Requirements

BAR PRICES, PAGE 35

**Pittsburgh**—An improvement in automotive releases has benefitted bar producers. One of the largest Michigan accounts has begun to take more material. On the other hand, practically no buying is in the market from railroads and miscellaneous users. Bar sales of a leading producer here are showing no decided trend as April opens. The merchant bar market is quoted generally at 1.60c, base, Pittsburgh. The Duquesne steelworks of the Carnegie Steel Co., Duquesne, Pa., resumed operations after six weeks of inactivity when three open-hearth furnaces were lighted April 4. Colonial Steel Co.'s, Monaca, Pa., bar mill is resuming April 10 with a 2-mill schedule.

**Chicago**—Bar specifications are heavier, principally as a result of better automotive demand. Implement manufacturers still provide little tonnage, and requirements of railroads are light. Bar mills are more active in concrete bars as a result of recent releases. The 1.70c, Chicago, market is well maintained on new business. Rail steel bars continue 1.50c, with bar iron 1.60c.

**Cleveland** — Miscellaneous heavy finished steel requirements, with commercial bars predominating, show a broadening trend and larger volume in shipments and bookings. Tonnage placed on sellers' books so far this month is 40 to 50 per cent larger than in the comparable period last month. Further releases have been issued on material Detroit manufacturers held up during the banking restrictions; new specifications also have improved. Bars are steady at 1.65c, base, Cleveland.

**Philadelphia** — Commercial steel bars are moving at better than the March rate, although specifications are down slightly from a week ago. Common iron bars are sluggish, reflecting particularly the dearth of railroad buying. The latter are holding around 1.50c, Pittsburgh, or 1.81c, Philadelphia. Commercial steel bars are firm at 1.60c, Pittsburgh or 1.91c, Philadelphia.

## Tin Plate Mills Up 5 Points; Beer Tins an Outlet?

Tin Plate Prices, Page 35

**Pittsburgh**—Some fair-size specifications for tin plate were in the market last week, and tin mill operations in this district have expanded by about five points to 45 per cent, average of all mills considered. The price is holding well at $4.25 per base box and tin mill black at 2.30c, Pittsburgh. One mill here reports orders of tin plate received in one day last week totaled almost 5000 tons. There have been several orders recently for tin plate to be used in bottle caps.

**New York**—Indications point to a widening demand in tin containers for beer. If half the estimated bottled beer output this year would be diverted to tin containers, approximately 6,000,000 base boxes would be required, it is said. Compared with bottles, tin containers are said to have the advantage in weight and preserving qualities; moreover there would be no doposits on containers and no breakage. One container now being experimented with particularly is of 14-ounce size, sufficient for two glasses. Relative to weight, two dozen of these containers filled are lighter by two pounds than a dozen 12-ounce bottles filled. The container is said to be taller than a vegetable can of comparable capacity and smaller in diameter. Development still is largely experimental, with containers of various sizes considered.

# Plates

## New Extra Card Makes Many Changes and Additions—Buying Is in Moderate Volume

PLATE PRICES, PAGE 35

**Pittsburgh**—A new card of extras on steel plates has been issued dated April 1, 1933. It differs from the preceding card in that extras for flame cutting are now quoted on plates 2⅛ to 5 inches thick, inclusive, and other extras are now quoted for thicker gages whereas these were quoted upon customers' application previously. Jones & Laughlin Steel Corp., Pittsburgh, has launched the second of two all-welded steel tank barges for the Producers Pipe Line Co., Louisville, Ky., at its South Side ways, Pittsburgh, on the Monongahela river. There are about 170 tons of plates in this barge. Costanzo Coal Co., Wheeling, W. Va., which is having ten 175-foot steel barges built for it at present by the Marietta Mfg. Co., Pt. Pleasant, W. Va., has bought the steamer Wm. Mueller which it will also use in the coal towing trade. Although plates are being sold at 1.60c, Pittsburgh, in general, where Pittsburgh mills sell in the eastern district they are forced to meet the Coatesville, Pa., base, which is close to 1.40c.

**Philadelphia**—Plate buying remains spotty, with prices generally unchanged at 1.40c to 1.50c, Coatesville, or 1.49½c to 1.59½c, delivered Philadelphia. Repairs are being made on 150 freight cars for the Reading Co., the last of its original program. Stainless steel, it is said, will be required for two battleship masts, on which the Edward G. Budd Mfg. Co., this city, is low. As previously reported, this company bid $367,000. New cards have been issued by plate producers, which establish extras on plates above 2 inches in thickness, a normalizing charge and definite schedules for flame or gas cutting. One or two additions to the quality extras and a clause affecting drillings for segregation test are also included. The copper bearing extra has been reduced $1 to $2 a ton. In general, there are more additions than actual changes.

Pusey & Jones Co., Wilmington, Del., has been awarded a ferryboat for the Virginia Ferry Corp., requiring about 1000 tons of plates, shapes and bars.

**Boston**—Plate buying in carloads or less has improved. A minimum of 1.50c, Coatesville, Pa., is being done by one eastern mill, which also is booking orders at 1.60c, although some sellers are reported doing 1.40c on some volume. Chicago Bridge & Iron Works, Chicago, is low on a 100-ton standpipe at Swampscott, Mass. An oil distributor is considering a substantial addition to storage facilities at Chelsea, Mass.

**New York**—Plates are moving in fairly good tonnage, small lots being particularly active, mainly for small tanks. The government naval program as tentatively proposed promises work for shipyards late this year. A large merchant ship for the United States Lines also is considered. About 1200 tons of plates is

pending for a steel pipe line upstate. The Jersey Central Power & Light Co., Asbury Park, N. J., is taking figures on 120 tons of 6⅝-inch steel pipe.

**Cleveland**—Small orders from miscellaneous manufacturers are more numerous, with the price firm at 1.60c, base, Pittsburgh. Some makers report moderate size sales to builders of brewery tanks.

**Chicago** — Inquiry for fabricated plate work is more active, with brewery construction providing a large portion of recent inquiries and awards. A local fabricator has booked 350 tons for tanks at Evansville, Ind., and a number of similar projects are pending. The oil industry is inactive in tank buying and repair work. Considerable plate tonnage is in prospect for building of river barges.

## Contracts Placed

350 tons, brewery tanks, for Sterling Products Co., Evansville, Ind.; to Graver Tank & Mfg. Corp., East Chicago, Ind.

195 tons, oil tanks, Texas City, Tex.; to Wyatt Metal & Boiler Co., Houston, Tex.

125 tons, for Mare Island navy yard, Calif.; to unnamed interests.

100 tons, standpipe, Swampscott, Mass.; to Chicago Bridge & Iron Works, Chicago, at $14,600.

Unstated tonnage, 75,000 gallon elliptical-bottomed steel tank on 110-foot tower, Illmo, Mo.; to Chicago Bridge & Iron Works, Chicago.

## Contracts Pending

1500 tons, contract No. 5, Yerba Buena island crossing, San Francisco-Oakland bridge; Clinton Construction Co., San Francisco, low.

100 tons, eleven 1500-barrel and five 250-barrel tanks for metropolitan water district of southern California; bids opened.

Unstated tonnage, 11,000-barrel oil barge, Dwyer Bros. Lighterage Co., New York; bids being compiled; Kindland & Drake, naval architects.

Unstated tonnage, two channel dredges, 244 x 52 x 9 feet, United States engineer, Memphis, Tenn.; bids April 26. Estimated cost approximately $1,000,000.

## Cold-Finished Sales Up

**Cold Finished Prices, Page 35**

**Pittsburgh**—March proved to be the lowest month in point of specifications and shipments of cold-finished steel bars since last July, but improvement appears in prospect for April. This is due largely to a partial resumption on the part of several automotive concerns and their partsmakers in the Detroit district. Base price of cold-finished bars is holding at 1.70c, Pittsburgh.

# Railroads

### Buying Lull Continues as Roads Await Legislation

**Track Material Prices, Page 35**

Expected railroad buying has not materialized, the delay being attributed to uncertainty as to the provisions for rehabilitation in forthcoming legislation. Chicago mills find inquiry for track fastenings more active, about 2000 tons pending. Some releases against contracts for rails and track fastenings have been received, but not in volume. Pittsburgh rail mills are unable to schedule a rolling on the basis of present tonnages on books. Miscellaneous steel for car repairs is being bought in small lots and such work appears to be at a low rate. Light rails are in small demand and some export business recently active has been abandoned. There is some discussion of the possibility of railroads exchanging old rails for new, directly with railmakers. Prices are unchanged and nominal.

New Orleans Car Wheel Co., New Orleans, has been awarded 200 car wheels for Panama, on which bids were taken March 29.

## Car Orders Placed

United Fruit Co., 42 fruit cars, 15 tons capacity, for Santa Maria railroad, Colombia, S. A.; to Pullman Car & Mfg. Co., Chicago.

## Locomotives Pending

Navy, two 35-ton switching locomotives and spares, Lualualei and West Loch T. H.; bids postponed from April 4 to April 18.

## Wire Needs Continue To Grow; Prices Are Firmer

**Wire Prices, Page 35**

**Chicago** — While wire demand shows little change, indications point to a moderate increase soon. Prices generally are steady with $2 for carload lots of wire nails and 2.15c for plain wire fairly well maintained.

**Worcester, Mass.**—Providence Insulated Wire Co., Providence, has booked power and lighting cable for the navy at $17,532.86, delivered, western yards, and paper insulated cable for the west at $1223.55, delivered. General Electric Co. took lighting and power cable for the west at $2019.69, delivered. While some gains have been made in demand for wire specialties, volume reaching mills improves only slightly. Plain wire is steady at 2.20c, Worcester.

**Pittsburgh** — The gain in wire product buying noted ten days ago continued through last week and in some cases the market on nails is being firmed so that $1.85 a keg for carload lots appears slightly stronger. Spring wire has been specified more freely and the same applies to plain wire for manufacturing purposes at 2.10c, Pittsburgh. Plant of one wire producer in this district has resumed operations.

**Cleveland** — Manufacturers continue covering wire requirements for second quarter, but current shipments are restricted to occasional carloads, mainly to bolt manufacturers. Jobber and agricultural demands for wire in this territory still are restricted by banking conditions. Demand for barbed wire in the West and Northwest is reported considerably improved. Plain wire is firm at 2.10c; and standard wire nails $1.85.

**New York**—Wire specifications have improved substantially over the past fortnight and some sellers report trade better than normal. While activity is due largely to expiration of old protections it has been long since consumers have so reacted to the threat of higher prices.

## Ore Inquiries Lacking; Ford Not in Market

**Iron Ore Prices, Page 36**

**Cleveland**—Demand for Lake Superior iron ore has not yet reached a point where producers have been asked to name prices for the season. No change from last year's levels now is contemplated, and if reaffirmed this will be the fifth consecutive year they have been in effect. Efforts are being renewed to have taxes reduced, one item which now is far above open-market ore prices. The Ford Motor Co. was the first in the market at the outset of the season for five consecutive years, inquiring for 300,000 to 400,000 tons, but last year it purchased only a small fill-in lot, shipping 65,000 tons from its own mines. No inquiry has been issued so far this season by the Ford company, and none is anticipated, its potential production, ore and pig iron stocks being considered ample for the year.

Stocks on Lake Erie docks April 1, amounting to 5,070,768 tons, were 688,595 tons less than April 1, 1932, the Lake Superior Iron Ore association reports. Shipments to interior furnaces in March were 35,083 tons, compared with 49,544 tons in 1932.

# Strip

**Automotive Needs Give Better Production—Other Orders Are Generally for Small Lots**

STRIP PRICES, PAGE 35

**Cleveland**—Shipments are improving moderately and a better feeling exists, with cold-rolled strip holding at 1.80c to 2.00c, base, Cleveland; and hot-rolled at 1.45c, Pittsburgh. General Motors units are releasing larger tonnages than at any time since February. Manufacturers of Ford parts also are specifying more liberally. Additional sales of small lots have been made for beer barrel hoops and beer cases.

**Pittsburgh**—Strip steel orders and inquiries have been better for the past week and operations in the mills of two leading strip producers in this district were scheduled for last week. One producer, who had been down for two weeks previously, started two mills April 3 for four days rolling. A second interest here started two mills April 4 and a wide mill April 5, all three running through the week. Specifications are largely for automotive tonnage released for April assembly schedules. Some cold-rolled business has come through for cash register manufacturers. Hot-rolled strip is holding at a base of 1.45c, Pittsburgh, but cold-rolled strip is quoted at a wide range of 1.80c to 2.00c base.

**Chicago**—Strip demand shows occasional gains, with automotive requirements slightly more active, although spotty. Miscellaneous specifications usually are for small lots, consumers not being interested in anticipating future requirements. The market retains the strength it has acquired over the past several weeks and 1.55c for hot strip is fairly well observed. Cold strip continues 1.90c to 2.00c, Pittsburgh-Cleveland.

**Boston**—While scattered sales of cold-rolled strip under 2.10c, Worcester, have been made, most of the light volume moves at that price. Demand continues to improve slowly, mainly for narrower widths.

**Philadelphia**—Strip buying continues quiet, with little fluctuation in tonnage from week to week. Cold-rolled is moving generally at 1.90c, Pittsburgh, or 2.21c, delivered, and hot-rolled at 1.45c, Pittsburgh, or 1.75c, Philadelphia.

## Steel Rate Gains 2 Points To 17.5; Youngstown at 18

**Pittsburgh**—Steel ingot production was 14 per cent as last week closed, a gain of one point because of a bulge of immediate-delivery orders. For this week, the rate will do well to hold 14 per cent. Duquesne steelworks of Carnegie Steel Co. resumed last week with three open-hearth furnaces after six weeks of inactivity. Eight out of 53 steelworks blast furnaces continue blowing. Four are Carnegie Steel Co. stacks and four are operated by three of the independent mills.

**Chicago**—Ingot production increased 2 points the past week to 15 per cent, with one independent mill at the best rate this year. Blast furnace schedules are unchanged, with five of 36 steelworks stacks active. March pig iron production was the lowest in recent years. Some additional slight gains are noted in finishing mill operations. Inland Steel Co. has started four open hearths.

**Cleveland**—Steel ingot production here for the week ended April 8 averaged 33 per cent, a 1-point increase over the preceding week being due to the lighting of a fourth open hearth late in the week by Corrigan, McKinney Steel Co. Otis Steel Co. continues with five units, and American Steel & Wire Co. with three. With no further change in schedules now contemplated the rate this week will be 35 per cent.

**Philadelphia**—Eastern ingot operations are up to 11 to 12 per cent with indications that the rate will at least be maintained over the week.

**Buffalo**—For the fifth consecutive week Buffalo district steelworks are operating at 14 per cent of capacity. The same five open hearths continue in operation week after week. Reopening of lake navigation may increase operations slightly, but production will not be speeded up materially until demand for heavy materials increases, steelworks executives say.

**Youngstown, O.**—Steel output here last week climbed five points to 17 per cent, but was expected to dip a point or two this week. A Carnegie open-hearth furnace was scheduled to go down April 12, offsetting slight gains made by district independents.

**Birmingham, Ala.**—Ensley Works of the Tennessee Coal, Iron & Railroad Co. will resume operations for one week beginning April 17. Last week's steelmaking rate was unchanged at 12½ per cent.

## Semifinished Steel Prices Are Steady

Semifinished Prices, Page 36

Open-market transactions in sheet bars, billets and slabs are reported holding at $26, base, Pittsburgh, Youngstown, O., and Cleveland. Material which was sold at $24 some time ago appears to be off-heat semifinished steel. Demand for forging quality billets has improved slightly, the $31 base holding. Orders for wire rods have not picked up as much as those for wire products, but $35 base, is firm for rods.

## Operating Rate of the Steel Industry, by Weeks

All figures except the monthly open-hearth and bessemer ingot totals of American Iron and Steel institute are percentages. Estimates are based upon weekly reports from the Pittsburgh, Chicago, Youngstown, eastern Pennsylvania, Cleveland, Birmingham, Ala., and Buffalo districts, which are weighted. Weeks end Saturday.

| 1932 | 1st Week | 2nd Week | 3rd Week | 4th Week | 5th Week | Steel's Average | Institute's Monthly Total tons | Institute's Monthly Average |
|---|---|---|---|---|---|---|---|---|
| Jan..... | 22 | 25 | 26 | 27 | 28.5 | 25.7 | 1,454,309 | 25.86 |
| Feb..... | 28.5 | 27 | 25 | 25 | .... | 26.4 | 1,450,648 | 26.83 |
| March.... | 25 | 25.5 | 24.5 | 23 | .... | 24.5 | 1,403,723 | 24.04 |
| April.... | 23 | 22 | 22 | 23 | 24 | 22.8 | 1,233,603 | 21.94 |
| May..... | 24 | 24 | 25.5 | 23 | .... | 24.1 | 1,101,994 | 19.60 |
| June..... | 21 | 17 | 17 | 17 | .... | 18.0 | 893,899 | 15.90 |
| July..... | 14.5 | 12 | 15.5 | 16.5 | 16.5 | 15.0 | 790,055 | 14.61 |
| Aug..... | 14.5 | 14.5 | 15.5 | 14.5 | .... | 14.7 | 829,236 | 14.20 |
| Sept..... | 13.5 | 15.5 | 15 | 17 | .... | 15.3 | 971,365 | 17.28 |
| Oct..... | 18 | 19 | 19.5 | 19.5 | 19.5 | 19.1 | 1,064,598 | 18.93 |
| Nov..... | 21 | 21 | 19 | 17.5 | .... | 19.6 | 1,010,894 | 17.98 |
| Dec..... | 16 | 15 | 14 | 12 | 13 | 14.0 | 843,244 | 15.00 |
| 1933 | | | | | | | | |
| Jan..... | 15.5 | 17 | 18 | 19 | .... | 17.4 | 1,009,483 | 17.84 |
| Feb..... | 19 | 19 | 19 | 17 | .... | 18.5 | 1,066,339 | 20.41 |
| March.... | 15 | 13.5 | 15 | 14 | 15.5 | 14.6 | 885,913 | 15.08 |
| April.... | 17.5 | .... | .. | .. | .... | .... | ..... | ..... |

# Structural Shapes

**Suspension of Government Work Leaves Little Tonnage Pending—2290 Tons Placed For Baltimore Appraiser's Store—Pittsburgh District Plant Is Closed**

STRUCTURAL SHAPE PRICES, PAGE 35

**Pittsburgh** — Estimating departments of leading structural fabricators note a continued decline in new projects, mainly in government buildings. The plant of a large independent fabricator here has been closed. Plain material is steady at 1.60c base, Pittsburgh.

**Chicago**—Public work comprises the bulk of recent structural activity, awards being headed by 1600 tons of piling for a Corpus Christi, Tex., dam placed with a local interest. Other orders, with the exception of 700 tons for a Louisiana bridge, are limited to lots of less than 500 tons.

**Cleveland**—Several small industrial building awards are noted here, but less tonnage is being figured in this district than in more than a year. New state projects will not take form until about July, fabricators understand. Government aid for state projects is in abeyance. A number of small bridges destroyed or damaged by recent floods in southern Ohio will have to be replaced.

**Boston** — Fabricating shops are booking only small lots. Some business taken recently at low prices has been sublet to other shops. Plain material is steady at 1.60c, Pittsburgh.

**New York**—With the recent closing of structural tonnages for federal government work and the lack of new inquiry, pending shape requirements are down. Placing of 2290 tons for the appraiser's store, Baltimore, is the largest award in the East. Several hundred tons are active for New York state buildings. Plain material holds at 1.60c, Pittsburgh.

**Philadelphia**—Structural steel demand is the lightest in months, with no orders of 100 tons or more noted. Standard shapes are unchanged at 1.60c, nearest mill.

## Contracts Placed

2290 tons, appraiser's store, Baltimore, to McClintic-Marshall Corp., Bethlehem, Pa.; Pike & Cook, Minneapolis, general contractor.

1600 tons, piling, La Fruta dam, Corpus Christi, Tex., to Inland Steel Co., Chicago.

1500 tons, fender structure, Golden Gate bridge pier, San Francisco, to Moore Dry Dock Co., Oakland, Calif.

700 tons, highway bridge, Sidell, La., to Wisconsin Bridge & Iron Co., Milwaukee.

420 tons, bridge, Pasco county, Florida, to Vincennes Bridge Co., Vincennes, Ind.

290 tons, schools, Scarsdale, N. Y., to Belmont Iron Works, Philadelphia; through William A. Berbusse Jr. Inc.

290 tons, state highway bridge, Clay county, Missouri, to Kansas City Structural Steel Co., Kansas City, Mo.

200 tons, bridges, Powers, Mich., for Chicago & North Western railroad, to American Bridge Co., Pittsburgh.

200 tons, bridge 3, Sedgewick county, Kansas, to Kansas City Structural Steel Co., Kansas City, Mo.; C. E. Gray, Emporia, Kans., general contractor.

200 tons, highway bridges, Missouri, to Mississippi Valley Structural Steel Co., Decatur, Ill.; Stupp Bros. Bridge & Iron Co., St. Louis, and Eagle Iron Works, St. Louis.

175 tons, two bascule bridges, Dismal Swamp, Deep Creek, Va., and South Mills, N. C., to Virginia Bridge & Iron Co., Roanoke, Va.; Tidewater Construction Co., Gloucester Point, Va., general contractor.

150 tons, tie rods for Los Angeles, to McClintic-Marshall Corp., Bethlehem, Pa.

150 tons, highway bridge, Hughes, Ark., to Pidgeon-Thomas Iron & Steel Co., Memphis, Tenn.

150 tons, state highway bridge, Grayling, Mich., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

140 tons, highway bridge, Gentry county, Missouri, to St. Joseph Structural Steel Co., St. Joseph, Mo.; previously reported to another fabricator.

130 tons, plant, Puritan Dairy Co., Perth Amboy, N. J., to Bethlehem Fabricators Inc., Bethlehem, Pa.

100 tons, bridge, Livingston county, Missouri, to Kansas City Structural Steel Co., Kansas City, Mo.

100 tons, postoffice, Redlands, Calif., to Consolidated Steel Corp., Los Angeles, previously reported as going to unstated fabricator; North-Moller Co., Jackson, Mich., general contractor.

Unstated tonnage, United States barracks No. 3, Fort Benning, Georgia, to Birmingham Iron & Ornamental Steel Co., Birmingham, Ala.; M. E. Gillioz, Monnett, Mo., general contractor.

## Shape Awards Compared

| | Tons |
|---|---|
| Week ended April 8 | 8,545 |
| Week ended April 1 | 21,594 |
| Week ended March 25 | 9,465 |
| This week in 1932 | 17,303 |
| Average weekly, 1932 | 14,285 |
| Average weekly, 1933 | 10,230 |
| Average weekly, March | 12,610 |
| Total to date, 1932 | 197,059 |
| Total to date, 1933 | 153,456 |

## Contracts Pending

12,000 tons, two bridges connecting Grand Island with Buffalo and Niagara Falls, N. Y.; R.F.C. approves loan for $2,800,000.

6500 tons, courthouse and customs house, St. Louis; N. P. Severin Co., Chicago, low, $2,623,277; bids April 4.

2800 tons, postoffice, Nashville, Tenn.; Frank Messer, Cincinnati, general contractor.

1500 tons, contract No. 5, Yerba Buena island crossing, San Francisco-Oakland bridge; Clinton Construction Co., San Francisco low at $1,821,292.

1363 tons, contract No. 3, San Francisco anchorage, San Francisco-Oakland bridge; Healy-Tibbitts Construction Co., San Francisco, low.

700 tons, postoffice, San Diego, Calif.; Larguara Construction Co., low for general contract; bids April 3.

340 tons, Jewish sanitarium, Brooklyn, N. Y.

300 tons, mainly piling and shapes, with smaller needs for washers, bolts, nuts, pipe and bent reinforcing bars, for navy, specification 9863; bids April 18.

220 tons, school, Kilgore, Tex.; also 25 tons of concrete bars.

200 tons, brewery building, Buffalo, N. Y.; bids in.

150 tons, repairs, Riverside viaduct, New York Central railroad, New York.

150 tons, steel grandstand for Madison Square Garden Corp., Long Island City, N. Y.

135 tons, postoffice, Union City, N. J.; Landis & Young, Monroe, La., low, $159,000, limestone; $165,500, terra cotta; bids March 30.

125 tons, addition to Marquis L. Ward home, Maplewood, N. J.

105 tons, mainly piling, bulkhead, Lockport, La.; bids to United States engineer, New Orleans, La.

100 tons, cell blocks and utility buildings, El Reno, Okla.

Unstated tonnage, alterations, trolley beams, hangar, Sunnyvale, Calif.; Golden Gate Iron Works, San Francisco, low, $4500.

## Colonial Steel Resumes

Colonial Steel Co., Colona, Pa., resumed operations April 10 in its 9 and 16-inch bar mills as well as the sheet mill. This plant had been idle for nearly a year. The opening is on an accumulation of orders for stocks over the country and also includes production of copper-clad steel in bar shapes, mainly after a special "cruciform" section, patents on which were taken out during the past year.

The alloy division of Vanadium Alloys Steel Co., of which Colonial Steel Co. is a subsidiary, has reported a sustained improvement in demand for its products, including Vascaloy, and has been operating two and three days weekly.

# Concrete Bars

**Reduced Highway Construction and Lack of Commercial Building Projects Restrict Tonnage—700 Tons Placed for Government Barracks—Market Is Easier**

REINFORCING BAR PRICES, PAGE 35

**New York**—Concrete bar demand is light, lack of new inquiry being a depressing factor. Prices are easy, with 1.40c, mill lengths, Pittsburgh, shaded. Demand for mesh has shrunk because of curtailed highway programs and lack of commercial building.

**Pittsburgh**—Concrete Steel Co., New York, is low on about 280 tons of new billet bars for the Richmond Bridge Corp., Richmond, Va., on bids taken last week. The company will take bids on 2750 tons this week. A Louisville, Ky., contractor is low for the 1200-ton Louisville, Ky., sewer project. March was the best month since last September in bar specifications coming into this district for production. New billet steel is 1.40c, base, Pittsburgh, for mill lengths.

**Chicago**—Few concrete bar inquiries are appearing, the largest involving about 600 tons for Indiana road work. Little demand is noted for private projects.

**Boston**—Concrete bar volume is light, and new inquiry is lacking. Billet bar prices are easy. Rail steel at 1.30c, eastern mill, is not subjected to much test.

**Philadelphia** — Inquiries for 300 tons of concrete bars for a warehouse for Pep Bros., this city, and 120 tons for the American Philosophical society's building here feature the market. Prices of material in cut lengths in carlots are fairly steady at 1.55c, Pittsburgh.

## Contracts Placed

700 tons, United States barracks No. 3, Fort Benning, Georgia, to Kalman Steel Corp., St. Louis; M. E. Gillioz, Monett, Mo., general contractor.

400 tons, Irvington tunnel, Hetch Hetchy project, San Francisco, to Soule Steel Co., San Francisco.

269 tons, state highway work in San Francisco county, California, to unnamed interest.

175 tons, highway route No. 29, section 3A, Essex and Union counties, New Jersey, to Truscon Steel Co., Youngstown, O.; through S. J. Groves & Son.

165 tons, highway, Yonkers-White Plains, Westchester county, New York, to Kalman Steel Corp.; through Thomas A. Brogan.

## Contracts Pending

1500 tons, two bridges connecting Grand Island with Buffalo and Niagara Falls, N. Y.; R. F. C. approves loan for $2,800,000.

1200 tons, sewer, Louisville, Ky.; Bickell Co., Louisville, low.

600 tons, Indiana road work; bids April 18.

500 tons, postoffice, Columbus, O.; Henry Erickson, Chicago, contractor.

500 tons postoffice, Nashville, Tenn.; Frank Messer, Cincinnati, general contractor.

280 tons, bridge for Richmond Bridge Corp., Richmond, Va.; Concrete Steel Co., New York, low.

200 tons, mausoleum, Los Angeles; bids soon.

181 tons, for San Quentin, Calif., Pacific Coast Steel Corp., San Francisco, low.

165 tons, Mt. Washington boulevard, deck work, Pittsburgh; Navarro Co., Oakmont, Pa., low on general contract.

150 tons, rebuilding ferry viaduct, St. George, Staten Island, N. Y.

## Cleveland Bolt, Nut Sales Gain; Other Markets Slow

Bolt, Nut, Rivet Prices, Page 35

Cleveland makers of bolts and nuts have booked the best orders in more than a year. Releases from Chevrolet, Ford and other automotive users, and manufacturers have improved. General jobbers also have been ordering more freely.

Chicago and Pittsburgh producers find no definite trend and little change from March rate of buying. Railroad and implement needs are covered in small lots at Chicago. Truck deliveries predominate in the Pittsburgh area.

Second quarter contracts are well covered and prices show no change from a discount of 75 off for bolts and nuts, 2.25c, Pittsburgh, and 2.35c, Chicago, on large rivets.

## Concrete Awards Compared

| | Tons |
|---|---|
| Week ended April 8 | 1,709 |
| Week ended April 1 | 1,842 |
| Week ended March 25 | 3,050 |
| This week, 1932 | 2,170 |
| Average weekly, 1932 | 3,920 |
| Average weekly, 1933 | 3,361 |
| Average weekly, March | 3,425 |
| Total to date, 1932 | 67,119 |
| Total to date, 1933 | 50,413 |

## Exports Turn Spotlight on Scrap; Seek New Supplies

(*Concluded from page 12*)

the sellers fight it out, in obtaining a price that was satisfactory.

At the same time, generally speaking, there has been a certain relationship between the delivered Japanese price and the Pittsburgh market on No. 1 steel. At New York, for instance, the f.a.s. price has been around $6, now perhaps nearer $6.25. The shipping rate to Japan, it is said, has varied from $3 to $3.50, so that the delivered Japanese price has ranged from $9 to $9.75, certainly no higher than $10, compared with around $9.25, Pittsburgh, at present.

On the West Coast there has been no flare-up in the price of automobile scrap for Japan, supplies apparently still being ample. Cargo space on the Pacific Coast is available at $2.50. No. 2 steel in the East for Italy has advanced slightly in recent weeks, approximately $4.50, f.a.s. with the ocean rate at around $2.25, or about the equivalent of the rail rate from Philadelphia to Harrisburg, Pa.

## Five Directors of Steel Corp. To Be Elected

Five directors come up for election at the annual meeting of the United States Steel Corp. in Hoboken, N. J., April 17. Directors whose terms expire are Walter S. Gifford, David F. Houston, Nathan L. Miller, Percival Roberts Jr., and Myron C. Taylor.

The regular monthly directors' meeting will be held the day after the stockholders' meeting, this being in line with the precedent established last year, at which time the by-laws of the corporation were altered so as to permit the meeting on this date instead of on the usual fourth Tuesday of the month. This change was made to expedite organization, following the election of directors at the annual stockholders meeting.

At the directors' meeting the executive officers, seven in all, will come up for election. These officers comprise Myron C. Taylor as chairman of the board and chairman of the finance committee; William J. Filbert, vice chairman; William A. Irwin, president; Nathan L. Miller.

general counsel; Henry L. Austin, comptroller; Gordon L. Edwards, treasurer; and George K. Leet, secretary. The posts of vice president are not elective.

## Here and There In Industry

C. Newman Wire Co. Inc., 25 Church street, New York, and its manufacturing affiliate, J. D. Crosby Co., specialist in cold rolling low and high carbon, alloy and stainless steels, have consolidated their interests and selling and manufacturing activities. These will be conducted under the name Newman-Crosby Steel Corp., with executive offices at Pawtucket, R. I., and general sales office at 25 Church street, New York. Personnel has not been changed.

□ □ □

Horace T. Potts & Co., Philadelphia, have been appointed agents of the Superior Steel Corp., Pittsburgh, in the sale of rustless iron and stainless steel.

### Institute Adds 6 Directors

Directors of the American Institute of Steel Construction Inc., New York, of which Charles F. Abbott is executive director, have been increased from 18 to 24 by the election of the following: L. A. Paddock, American Bridge Co., Pittsburgh; Ralph J. Stayman, Jones & Laughlin Steel Corp., Pittsburgh; G. H. Blakeley, McClintic-Marshall Corp., Bethlehem, Pa.; Joseph A. Moore, Moore Dry Dock Co., San Francisco; C. Edwin Michael, Virginia Bridge & Iron Co., Roanoke, Va.; and J. F. Duthie, Wallace Bridge & Structural Steel Co., Seattle.

### Canadian Production Falls

February production of steel ingots and castings in Canada at 12,374 tons, compared with 40,766 tons in January.

Output of pig iron in Canada in February was 6144 tons, compared with 29,209 tons in January. No furnaces were in blast in Canada on Jan. 31.

February total for ferroalloys at 1076 tons contrasted with 1217 tons in January.

Application has been made to the tariff commission for increased duties on abrasive cloths and papers.

# Pipe

**Cast Market More Active, with 9910 Tons Placed for Chicago —Oil Country Shipments Slow**

PIPE PRICES, PAGE 35

**Chicago**—Chicago has placed with two interests 9910 tons of 30, 36 and 48-inch cast pipe for its new pumping station, the largest order appearing in this market in many months. Activity in smaller lots also has improved; and sellers have a few projects to figure, in contrast to the almost complete absence of inquiries earlier in the year.

**Pittsburgh**—The movement of oil country pipe has been seriously curtailed due to a reported five-day holiday in the East Texas fields, and to restriction on drilling in other fields. Line pipe activity is especially quiet.

**Cleveland**—Occasional carload orders for steel pipe, mainly from jobbers, are noted, a lack of building operations restricting demand. Several hundred tons placed with a valley mill for the Cleveland postoffice has been released. The new discounts reducing steel pipe price $7 or more per ton now are in effect here.

**Boston**—Manchester, N. H., and Hartford, Conn., have bids on approximately 950 tons of cast pipe, and Boston has placed 1200 tons with a New Jersey foundry. Inquiry is up slightly, but seasonal activity is below normal.

**New York**—Small-lot purchasing of cast pipe has gained slightly, but early action on some of the larger tonnages pending is indefinite. The bulk of current orders are placed at $30, Eastern foundry.

As a result of recent changes in the mill cards on standard steel pipe, it is believed that stability will extend to the resale market in this district. In addition to a revision in standard pipe, reductions also have been made by mills in their line pipe and oil country cards.

**Birmingham, Ala.** — Cast pipe plants here are operating two to three days a week, with orders coming in slowly. Enough standard size stock is carried to meet spot business.

### Cast Pipe Placed

9910 tons, Chicago pumping station; 7460 tons, 48-inch, to United States Pipe & Foundry Co., Burlington, N. J.; 1350 tons 30-inch and 1100 tons 36-inch, to James B. Clow & Sons, Chicago.

1200 tons, 8 to 16-inch for Boston, to United States Pipe & Foundry Co., Burlington, N. J.

454 tons, 24-inch class 250, Glendale, Calif., to United States Pipe & Foundry Co., Birmingham, Ala.

375 tons, 4 and 6-inch, Public Service Electric & Gas Co., Newark, N. J., to R. D. Wood & Co., Florence, N. J.

215 tons, 12-inch, for Hartford, Conn., metropolitan district commission, to Warren Foundry & Pipe Co., Phillipsburg, N. J.

175 tons, 6 and 8-inch, Appleton, Wis., to United States Pipe & Foundry Co., Burlington, N. J.

165 tons, 6 and 8-inch, Yonkers, N. Y., to Donaldson Iron Works, Emaus, Pa. This is in addition to 900 tons placed recently with same foundry.

150 tons, 10-inch, Mount Vernon, N. Y., to Donaldson Iron Works, Emaus, Pa.

100 tons, 6-inch, state highway, Grand Central Parkway, Queens, N. Y., to Donaldson Iron Works, Pa.

### Steel Pipe Placed

Unstated tonnage, 1780 feet, 4.145-inch o. d., 0.4475-inch wall, seamless cold-drawn tubing for navy's Washington yard, to Ohio Seamless Tube Co., Shelby, O. Globe Steel Tubes Co., Milwaukee, awarded 1480 feet, 3.26-inch o. d., 0.1094-inch wall.

Unstated tonnage, including 1000 feet 20-inch i. d., electrically welded steel pipe and flanges, United States engineer, Cincinnati, to United Welding Co., Middletown, O., $3272.50, delivered; and Titusville Iron Works Co., Titusville, Pa., $277, delivered; bids March 10.

### Cast Pipe Pending

655 tons, 2 to 8-inch class 150 and 250, East Bay municipal water district, Oakland, Calif.; Frederick W. Snook Co., San Francisco, low for general contract.

437 tons, Sharp's Park and county jail, San Francisco; general contract to Frederick W. Snook Co., San Francisco.

400 tons, various sizes, Manchester, N. H.; bids in.

310 tons, 16-inch, Washington, United States Pipe & Foundry Co., Burlington, N. J., low.

### Steel Pipe Pending

250 tons, west extension, central heating plant, Washington; Peter and A. J. Ellis, low on general contract.

### Smith Makes Beer Barrels

A. O. Smith Corp., Milwaukee, is introducing a steel beer barrel, 22 inches high, 17½ inches in diameter, weighing 60 pounds, of carbon steel pitch lined. The corporation is preparing manufacturing facilities for a daily output of 4000 units.

Truscon Steel Co., Youngstown, O., reports net loss of $1,655,114, after charges, in 1932, compared with loss of $616,631 in 1931.

# Pig Iron

**American Radiator Covers—Firmer Prices in Valleys, at Pittsburgh and Cleveland**

PIG IRON PRICES, PAGE 36

**Pittsburgh**—Effective immediately, pig iron quotations will be strengthened and stabilization is expected to result from the following prices, Pittsburgh district furnace: basic $14, malleable and foundry $15, bessemer $15.50. The following prices for valley furnaces are announced: basic $14, malleable and foundry $14.50, bessemer $15. These prices represent no change from quoted levels except bessemer, up 50 cents in both valley and Pittsburgh districts. The market is slightly more active and a few inquires are current, but sales still run to carload proportions and less. Edgewater Steel Co. recently inquired for from 1000 to 2000 tons of basic, but being closed at present it is not likely to accept shipments for a time. Westinghouse Air Brake Co., Wilmerding, Pa., recently purchased a small lot of malleable. Standard Steel Car Co., Butler, Pa., has withdrawn an inquiry for several hundred tons of foundry. Some low phosphorus iron, believed to be 500 tons, has been sold to a Cleveland customer.

**Chicago**—Pig iron orders are heavier and shipments show further gains. From present indications, April shipments may be 50 per cent above the March rate, which would be the best month this year. Automotive releases are gaining over March, while smaller foundries continue to record occasional increases in their melts. Farm implement manufacturers remain the exception to improved conditions. Prices are considerably firmer, producers refusing to sell beyond second quarter at present prices. The general market continues $15.50, furnace, for No. 2 foundry and malleable.

**Cleveland**—A Cleveland steelworks blast furnace has withdrawn all prices below $14, base, Cleveland, for outside shipment. Quotations from this source recently ranged from $13 to $14.50; and on some distant competitive shipments, less than $13. While this interest is understood to have booked General Motors' pig iron requirements for 1933, as intimated in STEEL some time ago, no confirmation is forthcoming. Another Cleveland steelworks is consuming practically all of its blast-furnace output, and is not active outside. In Cleveland, where demand is quiet, the price holds at $15, base, furnace. Shipments to automotive and stove foundries continue to lift volume. Current sales and inquiries are light, bookings for the week aggregating 2000 tons.

Jackson county makers of silveries and bessemer ferrosilicons have withdrawn all outstanding quotations, and require that new inquiries to sales offices be submitted to them. It is reported, though not confirmed, that new quotations are up $1 a ton.

**Philadelphia**—Additional buying by an eastern Pennsylvania consumer has raised his purchases of gray forge over the past fortnight to more than 15,000 tons. This latter buying, said to involve around 10,000 tons, is for second half delivery,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whereas the recently noted order for more than 5000 tons was for this quarter. Miscellaneous buying is less active, but fair. New prices are holding, those on basic and malleable yet untested. Eastern Pennsylvania foundry iron is $13.50, base, furnace. The trend in foreign foundry iron appears upward.

**Boston**—Pig iron sales are heavier, while pending volume is fair. All prices are steadier. Practically all sellers have shared in the moderate spurt. The New England furnace took several hundred tons at a minimum of $16, furnace, and better. Buffalo iron sales are up at $14, furnace. Firmness in eastern Pennsylvania is reflected in delivered prices, while some southern iron has sold at $10.50, furnace, Birmingham. Both Indian and Dutch are slightly stronger, but the latter still has the advantage on a strictly price basis.

**Buffalo**—Demand for pig iron is gaining momentum. At least half a dozen inquiries range from 100 to 700 tons for local delivery. Eastern business continues competitive, but Buffalo iron is finding some sale there. Prices are firm.

**New York**—Largest pig iron order in several months involves requirements of six plants of the American Radiator & Standard Sanitary Corp. for the remainder of 1933. The material is for plants at Bayonne, N. J., Buffalo, Detroit, Springfield, O., Litchfield, Ill., and Elyria, O. It is the first sizable pig iron tonnage to have been bought by this company since last September, when approximately 50,000 tons were closed. Buying otherwise is for relatively small lots, with volume little changed from last week. Prices are firm.

**Cincinnati**—Buying of pig iron the past week was off as a sequence of purchasing in recent weeks in anticipation of a price increase in northern iron, now about 50 cents higher at $16.26, base, delivered Cincinnati, or $15.25 furnace. Full silicon differentials are to be added. Southern iron continues $10, base, Birmingham, but an increase would not be unexpected. An inquiry for 1200 tons of northern iron is pending.

**St. Louis**—The melt of pig iron has picked up moderately but the increase has been too small to find reflection in larger buying. Trading continues in small lots, up to 150 tons, with the total the past several days not exceeding 900 tons. The material taken was mainly foundry grades, about equally divided between northern and southern. There is a fair volume of inquiry, all for second quarter. Neither buyers nor sellers seem disposed to deal further ahead than the end of June. The firm price situation has been further buttressed by reported advances in the East. No change in quotations has taken place here, but all recent sales have carried the full listed figure.

**Birmingham, Ala.**—Prompt delivery is being made on specifications on old contracts and spot business, which is coming in slowly to the blast furnace interests. Plans are reported for blowing in two furnaces next month.

**Toronto, Ont.**—With further curtailment in operations facing various branches of the iron and steel industry, demand for merchant pig iron is tapering. Sales are less than 300 tons a week, mostly in car lots. No future delivery buying is being done. Production has ceased and prices are unchanged.

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Phoenix Chill Rolls
Phoenix Nickel Chill Rolls
Phoenix Steel Rolls
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(Uniformly Hard)

PITTSBURGH ROLLS CORPORATION

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# Coke

## Industrial Movement Slow—Domestic Prices Are Reduced

Coke Prices, Page 36

St. Louis reports that improvement in the metallurgical coke in the last half of March has been maintained, but in other districts a dull market obtains. Foundries are not covering ahead on coke to the same extent they are on pig iron and scrap.

The movement of heating coke at Chicago has been stimulated sharply by the reduction in price this month.

Beehive foundry, at Pittsburgh, is quoted at $2.25 to $2.50. By-product, at Chicago, is $7 for outside delivery and $7.75 delivered locally.

Domestic grades have been cut to $4.25 wholesale, delivered Cincinnati.

## Ferroalloys in Better Demand

Ferroalloy Prices, Page 36

Ferromanganese is holding at $61, duty paid, for spot shipments and domestic spiegeleisen, 19 to 21 per cent, is steady at $24, furnace. Specifications from mills in the Middle West show a fair increase compared with March requirements.

Detroit Gray Iron Foundry Co., 6403 Wight street, has changed its capitalization from 100,000 shares to $500,000.

## Mirrors of Motordom

(*Concluded from Page* 13)

no illusions that prosperity will return overnight and that boom times are just around the corner, but it appears much more convinced that the turn has come. A sales executive who is normally conservative forecasts a marked bulge in retail sales over the next 45 to 60 days, then a slight easing off to a comfortably high plateau until fall.

This is predicated to a considerable extent upon the belief that commodity prices have reached bottom. It is felt that if they do not turn upward through natural causes the administration at Washington will be compelled to supply the impetus.

Only through firmer commodity prices can the economies in the federal budget be made effective, and only through improved quotations on securities and real estate can frozen ban kassets be thawed out, is the reasoning here.

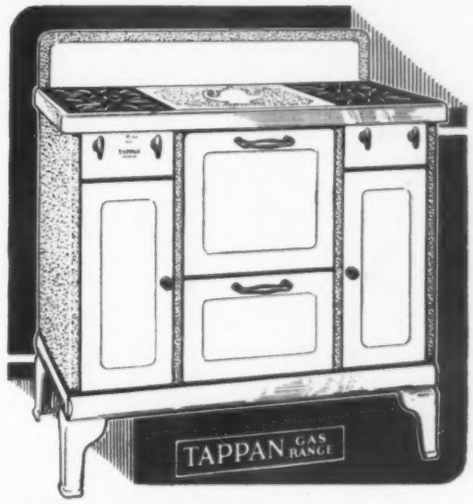
For the same reason that most automobile manufacturers put valances on their fenders this year, Detroit is ceasing to talk of its local financial troubles. The realization that radio broadcasts of it as a city that is "prostrate" and "in ashes" would tend to delay its recovery has effectually snuffed out public discussion.

### New Bank on Straightaway

The newly-organized National Bank of Detroit is functioning, and a further dividend of 40 per cent on the old banks, making a total of 50, is expected shortly. Thirteen directors have been selected for the new bank, including Alfred P. Sloan Jr., president of General Motors, and Walter P. Chrysler, head of the Chrysler Corp.

There is no Ford representation on the board, and it still is the case that Ford must bank locally at a General Motors institution—General Motors having supplied half the capital—or set up his own facilities. Incidentally, seven of the 13 directors are from the old bank directorates which have been so severely castigated over the radio.

Ford will buy no iron ore in the open market this year. Last year 10,000 tons was purchased, in previous years 300,000 to 400,000 tons, but if Ford should decide to relight his two blast furnaces the Ford property in upper Michigan could supply the ore. . . . Westinghouse Air Brake Co., Wilmerding, Pa., is manufacturing air steering units for the Bendix-Westinghouse Automotive Air Brake Co., to be installed on 65 New York city trucks. . . . Considerable experimentation is being done on an automatic transmission, which in effect would eliminate the gearshift lever.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# Scrap

**Southern Railway Offering of 200,000 Tons Placed—Weirton Steel Co. Takes 89,000 Tons**

**Pittsburgh**—After being offered for sale for almost two years, some 200,000 tons of scrap, in 16,000 freight cars and 100 locomotives of the Southern Railway, has been sold. Aside from much of this tonnage which will go to export, in which a syndicate of six brokers has participated, 89,000 tons of No. 1 heavy melting railroad steel scrap will be shipped to the Weirton Steel Co. plant, Weirton, W. Va. This scrap will move at the rate of 4000 tons in April and 8500 tons for each month following until February, 1934. Prior to the purchase by Weirton, this scrap was made available for a leading interest in this district which declined to purchase. The purchase was caused by lack of available scrap from usual sources and the heavy

## IRON AND STEEL SCRAP PRICES

*Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated*

| HEAVY MELTING STEEL | | |
|---|---|---|
| Birmingham | 6.50 to | 7.00 |
| Boston, dealers | 3.50 to | 3.75 |
| **Buffalo, No. 1** | **7.00 to** | **7.25** |
| **Buffalo, No. 2** | **6.00 to** | **6.25** |
| Chicago | 5.00 to | 5.50 |
| Cleve., No. 1 | 7.00 to | 7.50 |
| Cleve., No. 2 | 6.00 to | 6.50 |
| Det., No. 1 deal. | 5.00 to | 5.50 |
| Det., No. 2 deal. | 4.25 to | 4.75 |
| E. Pa. del. mill | | 6.50 |
| **E. Pa., No. 2 del.** | **5.00 to** | **5.50** |
| Federal, Ill. | 4.75 to | 5.25 |
| Granite City, Ill. | 4.50 to | 5.00 |
| N. Y., deal. R. R. | | 5.00 |
| N. Y. deal. No. 2 | 3.50 to | 4.00 |
| N. Y. deal. yd. | 2.50 to | 3.00 |
| Pitts. No. 1 | 9.50 to | 10.00 |
| St. L. No. 1 sel. | 5.50 to | 6.00 |
| Valleys, No. 1 | 9.00 to | 9.50 |

| COMPRESSED SHEETS | | |
|---|---|---|
| **Buffalo, dealers** | **6.00 to** | **6.25** |
| Chi. (Factory) | 4.00 to | 4.50 |
| Cleveland | 6.50 to | 7.00 |
| Detroit, dealers | 4.75 to | 5.00 |
| **E. Pa. new mat.** | **5.00 to** | **6.00** |
| Pittsburgh | 8.75 to | 9.25 |
| Valleys | 8.50 to | 9.00 |

| BUNDLED SHEETS | | |
|---|---|---|
| Buffalo | 4.00 to | 4.50 |
| Cincinnati, del. | 4.25 to | 4.75 |
| Cleveland | 4.50 to | 5.00 |
| Eastern, Pa. | | 5.00 |
| Pittsburgh | 7.75 to | 8.25 |
| St. Louis | 1.50 to | 2.00 |

| SHEET CLIPPINGS LOOSE | | |
|---|---|---|
| Chicago | 2.00 to | 2.50 |
| Cincinnati, | 1.75 to | 2.25 |
| Detroit, dealers | 1.25 to | 1.75 |
| St. Louis | 1.50 to | 2.00 |

| STEEL RAILS SHORT | | |
|---|---|---|
| Birmingham | 7.50 to | 8.00 |
| Boston, dealers | 3.50 to | 3.75 |
| Buffalo | 9.50 to | 10.00 |
| Chicago (3 ft.) | 8.00 to | 8.50 |
| Chicago (2 ft.) | 8.50 to | 9.00 |
| Cincinnati, del. | 8.50 to | 9.00 |
| Detroit, deal. | 8.00 to | 8.50 |
| Pitts. (open-hearth, 3 ft. and less) | 10.00 to | 10.50 |
| St. Louis | 7.00 to | 7.50 |

| STOVE PLATE | | |
|---|---|---|
| Birmingham | 5.50 to | 6.00 |
| **Boston, dealers** | **2.00 to** | **2.50** |
| **Buffalo** | **7.00 to** | **7.25** |
| Chicago, net | 5.00 to | 5.50 |
| **Cinci., deal. net** | **3.50 to** | **4.00** |
| **Det., net deal.** | **2.50 to** | **3.00** |
| **Eastern Pa.** | **5.50 to** | **6.00** |
| N. Y., deal. mill | 2.50 to | 3.00 |
| St. Louis | 5.50 to | 6.00 |

| COUPLERS, SPRINGS | | |
|---|---|---|
| **Buffalo** | 8.50 to | 9.00 |
| Chicago | 7.00 to | 7.50 |
| **Eastern Pa.** | 8.00 to | 8.50 |
| Pittsburgh | 10.25 to | 10.75 |
| St. Louis | 5.75 to | 6.25 |

| ANGLE BARS—STEEL | | |
|---|---|---|
| Chicago | 7.00 to | 7.50 |
| St. Louis | 5.75 to | 6.25 |

| LOW PHOSPHORUS | |
|---|---|
| Buffalo, billets and bloom crops | 8.50 to 9.00 |
| Cleveland bil. and bloom crops | 10.00 to 11.00 |
| **Eastern Pa.** | **10.00** |
| Pittsburgh billet bloom crops | 11.00 to 11.50 |
| Pitts., sheet bar crops | 11.00 to 11.50 |

| FROGS, SWITCHES | | |
|---|---|---|
| Chicago | 5.00 to | 5.50 |
| St. Louis | 5.50 to | 6.00 |

| SHOVELING STEEL | | |
|---|---|---|
| Chicago | 5.00 to | 5.50 |
| Cleveland | 5.75 to | 6.00 |
| St. Louis | 4.75 to | 5.25 |

| RAILROAD WROUGHT | | |
|---|---|---|
| Birmingham | 5.50 to | 6.00 |
| Boston, dealers | 1.00 to | 1.50 |
| **Buffalo, No. 1** | **4.25 to** | **4.75** |
| **Buffalo, No. 2** | **7.00 to** | **7.25** |
| Chi., No. 1, net | 4.50 to | 5.00 |
| Chicago, No. 2 | 5.00 to | 5.50 |
| Cinci., No. 2 | 5.25 to | 5.75 |
| Eastern Pa. | 6.50 to | 7.50 |
| N. Y., No. 1, deal. | 2.50 to | 3.00 |
| Pitts. No. 1 | 9.25 to | 9.75 |
| St. Louis, No. 1 | 3.50 to | 4.00 |
| **St. Louis, No. 2** | **5.00 to** | **5.50** |

| SPECIFICATION PIPE | | |
|---|---|---|
| Boston | 3.00 to | 4.00 |
| **Eastern Pa.** | **6.00 to** | **7.00** |
| N. Y., deal | 2.00 to | 2.25 |
| St. Louis | 4.75 to | 5.25 |

| BUSHELING | | |
|---|---|---|
| **Buffalo, No. 1** | **6.00 to** | **6.25** |
| Chicago, No. 1 | 4.00 to | 4.50 |
| Cinci., No. 1 deal. | 4.25 to | 4.75 |
| Cinci., No. 2 | 2.50 to | 3.00 |
| **Cleve., No. 2** | **4.00 to** | **4.50** |
| Det., No. 1 new deal. | 4.00 to | 4.50 |
| St. L., No. 1 | 3.00 to | 3.50 |
| Val. new No. 1 | 8.50 to | 9.00 |

| MACHINE TURNINGS | | |
|---|---|---|
| Birmingham | 2.50 to | 3.00 |
| Boston, dealers | 0.75 to | 1.00 |
| **Buffalo** | **3.75 to** | **4.25** |
| **Chicago** | **3.25 to** | **3.75** |
| Cinci., deal | 3.00 to | 3.50 |
| **Cleveland** | **4.00 to** | **4.25** |
| Detroit | 2.75 to | 3.25 |
| Eastern Pa. | 3.50 to | 4.00 |
| N. Y., deal. | 1.35 to | 1.50 |
| Pittsburgh | 6.50 to | 7.00 |
| St. Louis | 1.50 to | 2.00 |
| Valleys | 6.75 to | 7.25 |

| BORINGS AND TURNINGS *For Blast Furnace Use* | | |
|---|---|---|
| Boston, dealers | 0.75 to | 0.90 |
| **Buffalo** | **3.00 to** | **3.50** |
| Cinci., deal | 3.00 to | 3.50 |
| **Cleveland** | **4.50 to** | **5.00** |
| Detroit, deal. | 3.00 to | 3.50 |
| Eastern Pa. | 3.50 to | 3.75 |
| N. Y., deal. | 1.35 to | 1.50 |
| Pittsburgh | 5.75 to | 6.25 |

| CAST IRON BORINGS | | |
|---|---|---|
| **Birming., chem.** | **8.50 to** | **9.50** |
| Birming., plain | 2.50 to | 3.00 |
| Boston, chem. | 5.50 to | 6.00 |
| Boston, dealers | 1.00 to | 1.25 |
| **Buffalo** | **3.50 to** | **4.00** |
| Chicago | 3.50 to | 4.00 |
| Cinci., deal. | 3.00 to | 3.50 |
| Cleveland | 4.50 to | 5.00 |
| Detroit, deal. | 3.00 to | 3.50 |
| Eastern Pa. | 3.50 to | 3.75 |
| E. Pa., chem. | 8.00 to | 10.00 |
| N. Y., deal. | 1.00 to | 1.50 |
| **Pittsburgh** | **5.50 to** | **6.00** |
| St. Louis | 2.00 to | 2.50 |

| PIPE AND FLUES | | |
|---|---|---|
| Cinci., deal. | 3.25 to | 3.50 |

| RAILROAD GRATE BARS | | |
|---|---|---|
| Buffalo | 4.00 to | 4.50 |
| Chicago, net | 5.00 to | 5.50 |
| Cincinnati | 4.25 to | 4.75 |
| Eastern Pa. | 5.50 to | 6.00 |
| N. Y., deal. | 3.50 to | 4.00 |
| St. Louis | 4.50 to | 5.00 |

| FORGE FLASHINGS | | |
|---|---|---|
| Boston, dealers | 2.00 to | 2.50 |
| Buffalo | 5.50 to | 6.00 |
| Cleve. ov. 10 in. | 6.00 to | 6.50 |
| Detroit | 3.00 to | 3.50 |

| FORGE SCRAP | | |
|---|---|---|
| Boston, dealers | 1.75 to | 2.00 |
| Chicago | 6.50 to | 7.00 |
| Eastern Pa., del. | 5.00 to | 5.50 |

| ARCH BARS, TRANSOMS | | |
|---|---|---|
| Chicago, net | 5.00 to | 5.50 |
| St. Louis | 3.50 to | 4.00 |

| AXLE TURNINGS | | |
|---|---|---|
| Boston, deal. | 2.50 to | 3.00 |
| Buffalo | **6.00 to** | **6.25** |
| Chi., elec. fce. | 4.50 to | 5.00 |
| Cleveland | 5.50 to | 6.00 |
| **Eastern Pa., del.** | **6.00 to** | **7.00** |
| Pittsburgh, O. H. | 7.00 to | 7.50 |
| St. Louis | 3.00 to | 3.50 |

| STEEL CAR AXLES | | |
|---|---|---|
| Birmingham | 9.00 to | 9.50 |
| **Boston, ship. pt.** | **5.50 to** | **6.50** |
| Buffalo | 10.00 to | 10.50 |
| Chicago, net | 9.00 to | 9.50 |
| Eastern Pa. | | 14.50 |
| St. Louis | 8.75 to | 9.25 |

| SHAFTING | | |
|---|---|---|
| Boston, ship pt. | 6.50 to | 7.00 |
| Eastern Pa. | 11.00 to | 12.00 |
| N. Y., deal. | 5.50 to | 6.00 |
| St. Louis | 7.50 to | 8.00 |

| CAR WHEELS | | |
|---|---|---|
| Birming., iron | 6.50 to | 7.00 |
| Boston, iron deal. | 3.00 to | 3.25 |
| Buffalo, iron | 7.00 to | 8.00 |
| Buffalo, steel | 8.50 to | 9.00 |
| Chicago, iron | 8.25 to | 8.75 |
| Chi., rolled steel | 7.50 to | 8.00 |
| Cincinnati iron | 6.25 to | 6.75 |
| E. Pa. iron | | 8.50 |
| E. Pa. steel | 8.00 to | 8.50 |
| Pitts., iron | 8.00 to | 8.50 |
| Pitts., steel | 9.50 to | 10.00 |
| St. Louis, iron | 5.00 to | 5.50 |
| St. Louis, steel | 6.00 to | 6.50 |

| NO. 1 CAST SCRAP | | |
|---|---|---|
| Birmingham | 6.25 to | 6.75 |
| Boston, No. 2 | 2.25 to | 2.50 |
| Boston, textile | 6.00 to | 6.25 |
| **Buffalo, cupola** | **9.00 to** | **9.25** |
| Buffalo (mach.) | 9.50 to | 10.00 |
| Chicago, agri., net | 5.25 to | 5.75 |
| Chi., mach. net | 6.50 to | 7.00 |
| Chi., railroad net | 5.75 to | 6.25 |
| Cinci., mach. cup | 6.50 to | 7.00 |
| Cleve. cupola | 7.00 to | 8.00 |
| Det., net deal. | 6.50 to | 7.00 |
| E. Pa. cupola | 9.00 to | 9.50 |
| N. Y., cup. deal. | 4.50 to | 5.00 |
| N. Y., del. local foundries | 7.00 to | 7.50 |
| Pitts., cupola | 9.00 to | 9.50 |
| San Fran., del. | 13.50 to | 14.00 |
| Seattle | 4.50 to | 6.50 |
| St. L. No. 1 | 6.00 to | 6.50 |
| St. L. No. 1 mach. | 6.25 to | 6.75 |

| HEAVY CAST | | |
|---|---|---|
| Boston, del. | 3.25 to | 3.50 |
| Bost., mach. cast | 7.00 to | 7.50 |
| Buffalo, break | 6.50 to | 7.00 |
| Cleve., break | 5.50 to | 6.00 |
| Detroit, auto net deal. | 7.00 to | 7.50 |
| Det. break., deal. | 4.00 to | 4.50 |
| Eastern Pa. | 8.00 to | 8.50 |
| N. Y. No. 1, deal. | 4.50 to | 5.00 |
| N. Y. break, deal. | 4.00 to | 4.50 |
| Pittsburgh | 8.00 to | 8.50 |

| MALLEABLE | | |
|---|---|---|
| Boston, consum. | 6.75 to | 7.25 |
| Buffalo | 8.00 to | 8.50 |
| Chicago, agri. | 5.00 to | 5.50 |
| Chicago, R. R. | 6.50 to | 7.00 |
| Cinci., agri. del. | 6.00 to | 6.50 |
| Cinci., R. R., del. | 6.50 to | 7.00 |
| Cleveland, rail | 7.50 to | 8.00 |
| Det. auto deal. | 5.00 to | 5.50 |
| St. Louis | 7.00 to | 7.50 |

| RAILS FOR ROLLING *5 feet and over* | | |
|---|---|---|
| Birmingham | 7.00 to | 8.00 |
| Boston, deal. | 5.00 to | 5.50 |
| **Buffalo** | **7.00 to** | **7.50** |
| Chicago | 8.00 to | 8.50 |
| Eastern Pa. | | 9.50 |
| New York dealer | 3.75 to | 4.25 |
| St. Louis | 7.00 to | 7.50 |

| LOCOMOTIVE TIRES | | |
|---|---|---|
| Chicago, cut | 7.50 to | 8.00 |
| St. L., No. 1 | 5.00 to | 5.50 |

| LOW PHOS. PUNCHINGS | | |
|---|---|---|
| Buffalo | 9.00 to | 9.50 |
| Chicago | 7.50 to | 8.00 |
| Eastern Pa. | 8.00 to | 8.50 |
| Pittsburgh | 10.00 to | 10.50 |

drain exports have caused in the East. Shipments are to be made by rail to Memphis, Tenn., and then by American Barge Line over the Ohio river to Weirton, W. Va.

Due to an unusual circumstance, No. 1 heavy melting steel is quoted up 50 cents a ton in the Pittsburgh district. This is caused by the purchase last week of 2000 to 5000 tons of No. 2 steel by the leading interest here for delivery to Clairton, Pa., at $8.50. This is the first time this melter has purchased No. 2 steel. With such a strong No. 2 market, No. 1 steel has moved up to $9.50 to $10. This market thus maintains a proper relationship with the No. 2 market and at the same time covers prices which are felt would be paid in the event of buying. The Baltimore & Ohio's 1000 tons of No. 1 steel was moved into Johnstown, Pa., last week at $9.80.

No. 1 and No. 2 heavy melting steel are being taken by a Toronto, O., interest; orders just issued on the March Pennsylvania railroad list will move to that point.

**Chicago**—The scrap market tone is improved as a result of increased open-hearth operations. Shipments are slightly heavier and some new buying is anticipated shortly. Several thousand tons of heavy melting steel has accumulated at docks for eastern shipment, and a lack of surplus material is evident in this and other grades. Cast scrap continues strong, due to the lack of offerings. Heavy melting steel nominally is unchanged at $5 to $5.50.

**Cleveland**—Some activity has resulted from release of small orders for heavy melting steel and machine shop turnings by a steelmaker here this week. Other grades are quiet and quotations continue firm but unchanged despite advances at Detroit and Pittsburgh.

**Boston**—Scrap buying is light. New export business has slumped, although some No. 2 is being booked, about 2000 tons expected to be shipped late this month. A barge of stove plate moved to eastern Pennsylvania. New England consumers of machinery cast are taking small lots at $6 to $6.50, delivered, the pipe foundry recently paying $6.25. Delivered prices on No. 1 steel at the large steelmaking districts are still too low to bring out this grade here for outside shipment.

**Philadelphia** — Domestic consumption of scrap has improved moderately, with mills at Pencoyd, Pa., and Harrisburg, Pa., among the more active buyers. In general prices are unchanged, although a strong undertone prevails. Strength in steel was noted at the recent opening on scrap by the local navy yard, 325 tons going at $5.60 on cars. Approximately 200 tons of rails went at $4.77½, considered a good price in view of the sorting necessary on this particular lot. Seventy-five tons of shearing steel went at $4.

**New York**—Some scrap dealers are refusing further export business at present prices on No. 1 and 2 steel and in several instances have declined export contracts at prices above current quotations of $5, barge, for No. 1 and $3.50 to $4 for No. 2.

**Buffalo**—There is no demand for scrap in tonnage here, disappointing operations during the past ten weeks having deferred expected purchases. Dealers claim they are not pressing sales, because of belief that prevailing nominal prices are too low.

**Detroit**—A considerably stronger market is evidenced by increases of 25 cents in No. 1 heavy melting steel, compressed sheets, turnings, No. 1 new busheling and forge flashings. This strength is more sympathetic with the recovery in other districts than due to actual demand here. Another cargo for Cleveland has been loaded. Offerings of scrap are expected to expand with improved automobile schedules.

**Cincinnati**—Sales of steel and iron scrap are infrequent and of minor tonnages. Bids are being taken on normal scrap lists of the Southern, the Norfolk & Western, and Chesapeake & Ohio railroads. Prices are strong.

**St. Louis**—The feeling in iron and steel scrap shows marked improvement and for the first time in several months upward revisions have been made in some grades. Actual buying has not opened up to any great extent, but there is a good volume of scattered inquiry, the character of which indicates that the material is needed.

**Birmingham, Ala.**—Steel and iron scrap shows no indication of early recuperation. All prices are unchanged.

**Toronto, Ont.**—New business in iron and steel scrap is dull. Steel grades are at a standstill, while only a few lines of iron scrap are moving. No. 1 machinery cast is the most active but sales have dropped sharply. Dealers are out of the market but are carrying large accumulations hoping for revival soon.

# Warehouse

### Slight Gains Felt in Demand For Steel from Store

**Chicago**—Sales have shown a more definite improvement so far this month and jobbers are hopeful of additional betterment. Orders remain small and for only prompt needs, with release of some orders deferred during March. Prices are unchanged and generally steady.

**Pittsburgh**—April shows no trend in warehouse steel sales. Prices are holding although warehouse base of 2.60c continues weak on bars and small shapes, due to the continued inroads of trucked mill competition. Sheet prices are holding.

**New York**—While a few jobbers note a broader demand and slight gains for steel out of warehouse, volume continues light and some warehouses report no improvement. Distributors of black and galvanized pipe connected direct with mills are following recent reductions.

Armco and Toncan sheets out of warehouse here have been reduced 15 cents per 100 pounds.

**Cleveland**—Tonnage in warehouse sales here so far this month shows little improvement over the comparable period in March. This is in part attributed to an unsatisfactory banking situation here and nearby.

**Philadelphia**—Apart from reductions in special brands of sheets, the local warehouse market is unchanged, with demand holding to the March rate.

**Detroit**—Warehouse interests note a mild increase in the number of orders, but no appreciable expansion in the aggregate volume. Current requirements in the Detroit area are mostly for production instead of maintenance or experimental work. Engine bolt iron has been reduced 25 cents per 100 pounds to $7.15.

**Cincinnati**—A decided gain in demand for warehouse steel was noted during the past week, but part may have been the result of recent suspensions caused by a high river stage.

**St. Louis**—While spotty and irregular, demand for iron and steel commodities from warehouses is holding up well. One interest reports volume during the last week of March and the first week this month the largest for any fortnight this year. Sheets are more in demand than for some time, and there is also a heavier call for bars and strip.

## National Earns Dividend

National Steel Corp., Pittsburgh, earned sufficient in the first quarter to cover dividend requirements, which are at the quarterly rate of $269,604, E. T. Weir, chairman, said at the annual meeting March 27. All directors were re-elected. Capital stock was changed from no par to $25, involving no bookkeeping change.

## Warehouse Quotations at Leading Centers, in Cents Per Pound

*(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)*

| STEEL BARS | |
|---|---|
| Baltimore* | 2.35c |
| Boston†† | 2.90c |
| Buffalo | 2.95c |
| Chattanooga | 3.00c |
| Chicago | 2.75c |
| Cincinnati | 3.00c |
| Cleveland | 2.75c |
| Detroit | 2.85c |
| Houston | 2.40c |
| Los Ang. | 3.30c |
| **New Orleans** | **2.50c** |
| New York‡(d) | 3.10c |
| Philadelphia | 2.45c |
| Pittsburgh | 2.60c |
| Portland | 3.00c |
| San Fran. | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.00c |
| St. Paul | 3.00c |
| Tulsa | 3.25c |

| IRON BARS | |
|---|---|
| Baltimore | 2.35c |
| Boston†† | 3.10c |
| Buffalo | 3.15c |
| Chattanooga | 3.00c |
| Chicago | 2.75c |
| Cincinnati | 3.00c |
| Detroit | 2.85c |
| New York‡(d) | 3.10c |
| Philadelphia | 2.45c |
| St. Louis | 3.00c |
| Tulsa | 3.25c |

| REINFORC. BARS | |
|---|---|
| Baltimore | 2.35c-3.00c |
| Boston | 3.10c-3.25c |
| Buffalo | 2.95c |
| Chattanooga | 3.00c |
| Cincinnati | 3.00c |
| Cleveland | 2.10c-2.25c |
| Detroit | 2.85c |
| Houston | 3.00c |
| Los Ang. cl. | 2.10c |
| **New Orleans** | **2.75c** |
| Los Ang., lcl | 2.40c |
| New York | 2.65c-3.10c |
| Phila. | 2.62½c |
| Pittsburgh | 2.30c |
| San Fran. cl. | 2.00c |
| San Fran. lcl | 2.40c |
| Seattle | 3.00c |
| St. Louis | 3.15c |
| Tulsa | 3.25c |
| Young. | 2.30c-2.60c |

| SHAPES | |
|---|---|
| Baltimore* | 2.35c |
| Boston†† | 3.00c |
| Buffalo | 3.20c |
| Chattanooga | 3.20c |
| Chicago | 3.00c |
| Cincinnati | 3.25c |
| Cleveland | 2.95c |
| Detroit | 3.10c |
| Houston | 2.65c |
| Los Ang. | 3.30c |
| **New Orleans** | **3.50c** |
| New York(d) | 3.10c |
| Philadelphia | 2.45c |
| Pittsburgh | 2.85c |
| Portland | 3.35c |
| San Fran. | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.25c |
| St. Paul | 3.25c |
| Tulsa | 3.50c |

| PLATES | |
|---|---|
| Baltimore* | 2.35c |
| Boston†† | 3.00c |
| Buffalo | 3.20c |
| Chattanooga | 3.20c |
| Chicago | 3.00c |
| Cincinnati | 3.25c |
| Cleveland, ¼-in. and thicker | 2.95c |
| Cleve., 3/16-in. | 3.20c |
| Detroit | 3.10c |
| Det., 3/16-in. | 3.10c |
| Houston | 3.00c |
| Los Angeles | 3.30c |
| **New Orleans** | **3.50c** |
| New York(d) | 3.30c |
| Philadelphia | 2.45c |
| Phila. floor | 5.10c |
| Pittsburgh | 2.85c |
| Portland | 3.35c |
| San Fran. | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.25c |
| St. Paul | 3.25c |
| Tulsa | 3.50c |

| NO. 10 BLUE | |
|---|---|
| Baltimore* | 2.80c |
| Boston†† | 2.90c-3.00c |
| Buffalo | 3.10c-3.25c |
| Chattanooga | 3.44c |
| Chicago | 2.75c-2.90c |
| Cincinnati | 3.05c |
| Cleveland | 3.00c |
| Detroit | 2.90c-3.05c |
| Houston | 3.35c |
| Los Ang. | 3.60c |
| **New Orleans** | **3.25c** |
| New York | 2.75c |
| Portland | 4.00c |
| **Phila.*† (e)** | **2.70c** |
| Pitts.** | 2.65-2.90c |
| San Fran. | 3.50c |
| **Seattle** | **3.50c** |
| St. Louis | 3.00c-3.15c |
| St. Paul | 3.45c |
| Tulsa | 3.70c |

| NO. 24 BLACK | |
|---|---|
| Balt.*† | 3.50c |
| Boston†† | 3.85c |
| Buffalo | 3.70c |
| Chattanooga | 3.50c |
| **Chicago** | **3.20c** |
| Cincinnati | 3.50c |
| Cleveland | 3.25c |
| Detroit | 3.30c |
| Los Ang. | 4.20c |
| New York | 3.25c |
| **Phila.*†(e)** | **3.15c** |
| Pitts.** | 3.35c |
| Portland | 4.50c |
| San Fran. | 3.90c |
| **Seattle** | **4.25c** |
| St. Louis | 3.70c |
| St. Paul | 3.695c |
| Tulsa | 4.75c |

| NO. 24 GAL. SHEETS | |
|---|---|
| Balt.*† | 4.00c |
| Buffalo | 4.00c |
| Boston†† | 4.00c |
| Chattanooga | 3.95c |
| **Chicago** | **3.25c-3.50c** |

††Base 15,000 lbs., extras on less.

| | |
|---|---|
| **Cincinnati** | **3.55c** |
| **Cleveland** | **3.50c** |
| Detroit | 3.50c |
| Houston | 3.57c |
| Los Ang. | 4.50c |
| **New Orleans** | **3.95c** |
| New York | 3.50c |
| **Phila.*† (e)** | **3.50c** |
| **Pitts.**** | **3.85c** |
| Portland | 5.00c |
| San Fran. | 4.55c |
| **Seattle** | **4.75c** |
| St. Louis | 4.00c |
| St. Paul | 4.19c |
| Tulsa | 5.10c |

| †BANDS | |
|---|---|
| Baltimore | 2.65c |
| Boston†† | 3.40c |
| Buffalo | 3.30c |
| Chattanooga | 3.20c |
| Chicago | 2.95c |
| Cincinnati | 3.20c |
| Cleveland | 3.00c |
| Det. 3/16-in. & lighter | 3.15c |
| Houston | 2.85c |
| Los Ang. | 3.80c |
| **New Orleans** | **2.75c** |
| New York(d) | 3.30c |
| Philadelphia | 2.75c |
| Pittsburgh | 2.95c |
| Portland | 3.85c |
| San Fran. | 3.15c |
| Seattle | 3.50c |
| St. Paul | 3.20c |
| Tulsa | 3.45c |

| †HOOPS | |
|---|---|
| Baltimore | 2.65c |
| Boston | 4.90c |
| Buffalo | 3.95c |
| Chicago | 3.50c |
| Cincinnati | 3.75c |
| Det. No. 14 & lighter | 3.65c |
| New York | 3.30c |
| Philadelphia | 3.00c |
| Pittsburgh | 3.60c |
| Seattle | 5.00c |
| St. Paul | 3.75c |

†New extras apply.

| COLD FIN. STEEL | |
|---|---|
| *Rounds and Hexagons* | |
| Baltimore (c)* | 3.48c |
| Boston | 3.60c |
| Buffalo | 3.00c |
| Chattanooga* | 3.65c |
| Chicago | 3.00c |
| Cincinnati | 3.32c |
| Cleveland | 2.95c |
| Detroit | 3.15c |
| Los Ang. (a) | 4.25c |
| New Orleans | 4.25c |
| Philadelphia | 3.35c |
| Pittsburgh | 2.95c |
| Portland (a) | 4.50c |
| San Fran(d)(f) | 5.55c |
| Seattle (a) | 4.50c |
| St. Paul (a) | 3.20c |
| St. Louis | 3.36c |
| Tulsa | 4.65c |

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted, Philadelphia, Chicago, Cleveland, Detroit.

| COLD ROLL. STRIP | |
|---|---|
| Boston 0.100 in., 500 lb. lots | 5.20c |
| Buffalo | 5.25c |
| Chicago (b) | 5.65c |
| Cincinnati | 5.80c |
| Cleve. (b) | 5.55c |
| Detroit | 5.40c |
| Phila. (c) | 4.55c |
| New York | 4.55c |

(a) Rounds, hex. only.
(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
(f) Rounds only.
(g) Bessemer analysis extras included.
‡Domestic bars.
*Plus quan. extras.
**Under 25 bundles.
*†50 or more bundles.

# Pacific Coast

**Bridge Lettings Bring Most of Current Tonnage; Bids Opened On Last Major Contracts—Dull Conditions Rule in General Demand—Northwest Trading Is At Lowest Level**

**San Francisco**—(*By Air Mail*)—The feature of the week was the opening of bids on the last two major contracts for the San Francisco-Oakland bridge. Clinton Construction Co., San Francisco, was low bidder at $1,821,292 for contract No. 5, Yerba Buena Island crossing, involving 2200 tons of reinforcing bars, 1500 tons of plates and 1500 tons of structurals. Healy Tibbitts Construction Co., San Francisco, was low bidder on contract No. 3, San Francisco anchorage, at $1,036,500, calling for 1400 tons of reinforcing bars and 1363 tons of shapes.

Demand for bars is quiet, and only two awards of size were noted. Soule Steel Co., took 400 tons for the Irvington tunnel. Hetch Hetchy project, San Francisco, and unnamed interest booked 269 tons for highway work San Francisco county. Pacific Coast Steel Corp. is low bidder on 181 tons for work at San Quentin, Calif. Bids will be taken soon on 200 tons for a mausoleum in Hollywood. Prices are weak at 2.00c, base, on carloads.

Movement of structural shapes continues slow. McClintic-Marshall Corp. took 150 tons of tie rods for Los Angeles. Bids have been postponed on 1500 tons for a county jail in San Francisco until April 12. Bids have been opened on 134 tons for a bridge in Kit Carson county, Colorado. The North Moller Co., Jackson, Mich., is low on a postoffice in Ventura, Calif.

United States Pipe & Foundry Co. has taken 454 tons of 24-inch pipe for Glendale, Calif. Frederick W. Snook Co., San Francisco, took the general contract for 437 tons of 10-inch pipe for Sharp's Park and the county jail, at San Francisco and is low on 655 tons of 2 to 8-inch pipe for Oakland, Calif.

## Most Lots Are Small

**Seattle**—While awards of over 100 tons were lacking this week, bids were opened for projects involving both shapes and reinforcing bars. Interstate Engineering & Construction Co., Newport, Wash., was low at $30,997 for a 208-foot bureau of roads span over Slate creek, Pend Oreille county, Wash. About 150 tons of steel will be required.

Bids have been opened by the United States engineer at Portland, Oreg., for the Columbia river south jetty improvement, calling for 570 tons 75-pound relaying steel rails, 5 sets of frogs and switches, 80,000 feet of ⅝ wire cable, 180 tons of bolts, angle bars, spikes and rods, also pile shoes and anti-rail creepers. Montsarrat & Pratley, supervising engineers, 909 Drummond building, Montreal, Que., will receive bids April 18 for construction of a concrete substructure for the Second Narrows bridge at Vancouver, B. C.

Wholesale jobbers report trade quiet. Prices are unchanged but purchasers are holding back. Some small tonnages of cast iron pipe for municipal requirements are pending in Oregon and Idaho but inquiries are unimportant. Scrap still is moving to Japan but supplies are so abundant that the recent buying movement has failed to firm prices, $4.50 gross ton being the going offer, f.o.b. ship. Local steel plants are out of the market, having large stocks.

# Steel in Europe

**Steel Entente Renewed for Five Years; Aids Markets**

**London**—(*By Cable*)—Continental steel entente has been reorganized for five years, following agreement on the principles of international selling syndicates whose details will be settled later. Many Continental firms have retired from the market for the present, expecting a rise in prices. Markets in general are expectant of good results from this revival. German export trade has improved and Paris reports domestic trade is more active.

The British pig iron market is quieter and hematite stocks are still heavy. Middlesbrough steelworks are fairly active but those in the Midlands and Scotland are quiet. Galvanized sheet exports are dull. The tin plate market shows less activity.

## Current Iron and Steel Prices of Europe

**Dollars at Rates of Exchange, April 6**

### Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

| | British gross tons U. K. ports | £ s d | Continental Channel or North Sea ports, metric tons Gold parity, $4.8665 | £ s d | £ s d |
|---|---|---|---|---|---|
| **PIG IRON** | | | | | |
| Foundry, 2.50-3.00 Silicon | $10.00 | 2 18 6 | $8.27 | | 1 14 0 |
| Basic bessemer | 9.23 | 2 14 0* | 6.81 | | 1 8 0 |
| Hematite, Phos. .03-.05 | 10.09 | 2 19 0 | ..... | | ..... |
| **SEMIFINISHED STEEL** | | | | | |
| Billets | $17.10 | 5 0 0 | $10.22 | | 2 2 0 |
| Wire rods, No. 5 gage | 25.65 | 7 10 0 | 21.90 | | 4 10 0 |
| **FINISHED STEEL** | | | | | |
| Standard rails | $26.51 | 7 15 0 | $26.77 | | 5 10 0 |
| Merchant bars | .99c | 6 10 0 | .52c to .53c | 2 7 0 to 2 8 0 | |
| Structural shapes | 1.13c | 7 7 6 | .46c | | 2 2 0 |
| Plates, †¼ in. or 5 mm | 1.30c | 8 10 0 | .74c | | 3 7 6 |
| Sheets, black, 24 gage or 0.5 mm. | 1.30c | 8 10 0 | 1.18c | | 5 7 6 |
| Sheets, gal., 24 gage, corr. | 1.61c | 10 10 0 | 1.46c | | 6 12 6 |
| Bands and strips | 1.19c | 7 15 0 | .77c to .80c | 3 10 0 to 3 12 6 | |
| Plain wire, base | 1.34c | 8 15 0 | 1.18c | | 5 7 6 |
| Galvanized wire, base | 1.61c | 10 10 0 | 1.38c to 1.40c | 6 5 6 to 6 7 6 | |
| Wire nails, base | 1.84c | 12 0 0 | 1.27c | | 5 15 0 |
| Tin plate, box 108 lbs. | $ 2.69 | 0 15 9 | ..... | | ..... |

British ferromanganese $68 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

### Domestic Prices at Works or Furnace—Last Reported

| | £ s d | | French Francs | | Belgian Francs | | Reich Marks |
|---|---|---|---|---|---|---|---|
| Fdy. pig iron, Si. 2.5 | $10.69 | 3 2 6† | $ 7.86 | 200 | $ 8.09 | 290 | $16.32 | 69 |
| Basic bessemer pig iron | 10.09 | 2 19 0†* | 6.68* | 170 | 6.14 | 220 | 17.86 | 75.50 |
| Furnace coke | 2.27 | 0 13 3 | 4.72 | 120 | 3.07 | 110 | 4.55 | 19.25 |
| Billets | 17.10 | 5 0 0 | 14.54 | 370 | 10.46 | 375 | 22.82 | 96.50 |
| Standard rails | 1.26c | 8 5 0 | 1.25c | 697 | 1.50c | 1,150 | 1.41c | 132 |
| Merchant bars | 1.03c | 6 15 0 | .95c | 530 | .62c | 475 | 1.18c | 110 |
| Structural shapes | 1.34c | 8 15 0 | .99c | 550 | .61c | 470 | 1.15c | 107.50 |
| Plates, †¼-in. or 5 mm | 1.34c | 8 15 0 | 1.22c | 680 | .78c | 600 | 1.36c | 127 |
| Sheets, black | 1.45c | 9 10 0§ | 1.53c | 850‡ | .91c | 700‡ | 1.54c | 144‡ |
| Sheets, galv., corr., 24 ga. or 0.5 mm | 1.80c | 11 15 0 | 2.43c | 1,350 | 1.82c | 1,440 | 3.96c | 370 |
| Plain wire | 1.34c | 8 15 0 | 2.03c | 1,130 | 1.69c | 1,300 | 1.89c | 177 |
| Bands and strips | 1.45c | 9 10 0 | .90c | 500 | .88c | 675 | 1.36c | 127 |

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price.
British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel.
(a) dd. Middlebrough

## Nonferrous Mill Products

*Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 5.75c, Conn., for copper*

**SHEETS**

| | |
|---|---|
| Yellow brass (high) | 11.25 |
| Copper, hot rolled | 13.87½ |
| Lead sheets, cut, to jobbers | 7.00 |
| **Zinc sheets (100-lb. base)..** | **9.00** |

**TUBES AND PIPES**

| | |
|---|---|
| Seamless yellow brass (high) | 13.50 |
| Seamless copper | 12.62½ |

**RODS**

| | |
|---|---|
| Yellow brass (high, full turning) | 8.75 |
| Naval brass | 9.87½ |

**ANODES**

| | |
|---|---|
| Copper, untrimmed | 10.75 |

**WIRE**

| | |
|---|---|
| Yellow brass (high) | 11.25 |

## Old Metals

*Dealers' buying prices, cents lb.*

**NO. 1 COMPOSITION RED BRASS**

| | |
|---|---|
| New York | 2.50 to 2.62½ |
| Chicago | 2.00 to 2.25 |
| Cleveland | 2.25 to 2.50 |
| St. Louis | 2.25 |

**HEAVY YELLOW BRASS**

| | |
|---|---|
| New York | 1.62½ to 1.75 |

**HEAVY COPPER AND WIRE**

| | |
|---|---|
| New York | 3.62½ to 3.87½ |
| Chicago, No. 1 | 3.00 to 3.12½ |
| Cleveland | 2.50 to 3.00 |
| St. Louis | 2.50 |

**COMPOSITION BRASS BORINGS**

| | |
|---|---|
| **New York** | **2.25 to 2.50** |

**YELLOW BRASS TUBING**

| | |
|---|---|
| **Cleveland** | **1.75 to 2.00** |

**LIGHT COPPER**

| | |
|---|---|
| New York | 2.75 to 2.87½ |
| Chicago | 2.00 to 2.12½ |
| Cleveland | 2.25 to 2.50 |
| St. Louis | 2.25 |

**LIGHT BRASS**

| | |
|---|---|
| Chicago | 1.00 to 1.12½ |
| Cleveland | 1.25 to 1.75 |
| St. Louis | 1.25 |

**LEAD**

| | |
|---|---|
| New York | 2.00 to 2.12½ |
| Cleveland | 1.50 to 1.75 |
| Chicago | 1.87½ to 2.12½ |
| **St. Louis** | **2.00** |

**ZINC**

| | |
|---|---|
| New York | 1.12½ to 1.25 |
| Cleveland | 1.00 to 1.12½ |
| Chicago | 1.00 to 1.12½ |
| **St. Louis** | **1.25** |

**ALUMINUM**

| | |
|---|---|
| Clippings, new, soft, Cleve. | 9.50 to 10.50 |
| Clippings, hard, Cleveland | 6.00 to 7.00 |
| Borings, Cleveland | 2.50 to 3.00 |
| Mixed cast, Cleveland | 3.75 to 4.25 |
| Mixed cast, St. Louis | 4.00 to 4.25 |

## Secondary Metals

| | |
|---|---|
| Brass ingot, 85-5-5-5 | 5.50 |
| **Remelt aluminum No. 12..** | **8.00 to 9.00** |

# Metals

**Curtailment Plans Result in Higher Levels for Copper and Zinc—Tin Also Up**

**New York**—Prospects for sharp curtailment in zinc and copper production resulted in higher prices for these metals last week. Lead held steady and tin pushed upward to the highest level in several months. Silver also firmed up but antimony was easier.

**Copper**—Electrolytic copper again advanced to above the 5-cent level last week as reports regarding probable curtailment of production gained more authenticity. Nevada Consolidated, Utah and Magma announced plans for curtailment or cessation of production and others were expected to follow. Electrolytic metal had advanced to 5.25c by the end of the week as quoted by custom smelters. Lake copper sellers quoted prime metal at 5.37½c. Brass ingot quotations also moved up ¼-cent. The large mine producers of copper continued out of the market at the entirely nominal quotation of 6.25c for electrolytic. Copper and brass products continued on the basis of 5¾-cent metal.

**Lead**—Buying was light last week, being mostly in carlots. Consumers are well covered on April requirements, but have little booked for delivery in May. Despite the slow pace of buying, prices held steady at 3.00c. New York, and 2.87½c. East St. Louis, in view of curtailed production by two of the larger interests which is expected to result in an improved statistical position for the industry.

**Zinc**—The market took on a firmer appearance last week with the price level somewhat above that of the preceding period. Tri-State ore producers inaugurated a new curtailment program which is expected to result in higher prices for the ore and consequently for the metal. An improvement in production of galvanized products is expected to further strengthen the market.

**Tin**—Sellers booked a fair amount of business last week. Straits metal for spot delivery advanced to substantially above the 25-cent level. Scarcity of spot resulted in a premium on this position over later delivery dates.

**Antimony**—Easiness developed in the market, accompanied by slow demand.

**Aluminum**—Additional reports of price cutting came into the market for virgin metal. Remelt grades showed little change.

## Benzol More Active

**New York**—Specifications on benzol are slightly heavier. Demand for solvent naphtha and xylol is unchanged. Naphthalene shipments are holding to the recent rate. Sulphate of ammonia is active at unchanged prices.

## Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

| | Spot |
|---|---|
| Pure benzol | $0.22 |
| 90 per cent benzol | 0.22 |
| Toluol | 0.30 |
| Solvent naphtha | 0.26 |
| Comercial xylol | 0.26 |

Per Pound at Producers' Plants in 250-Pounds Drums

| | |
|---|---|
| Phenol | 0.153 to 0.173 |

Per Pound at Producers' Plants

| | |
|---|---|
| Naphthalene flakes | 4.75 to 5.75 |
| Naphthalene balls | 4.75 to 5.75 |

Per 100 Pounds Atlantic Seaboard

| | |
|---|---|
| Sulphate of ammonia | $1.10 |

## Quicksilver Firmer

**New York**—Quicksilver prices are firmer, small lots generally quoted $54 to $55, a virgin flask of 76 pounds. Round lots may be had from $53 to $54 a flask.

## Nonferrous Metal Prices of the Week, Cents a Pound

Spot unless otherwise specified

| | Copper | | | Straits Tin New York | | Lead | Lead East | Zinc | Aluminum | Antimony | Ingot |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Electro., del. Conn. | Lake, del. Midwest | Casting, refinery | Spot | Futures | N. Y. | St. L. | St. L. | 98-99% | Spot, N. Y. | Nickel |
| April 1 | 5.00 | 5.12½ | 4.75 | 24.10 | 24.70 | 3.00 | 2.87½ | 2.90 | *22.90 | 5.87½ | 35.00 |
| April 3 | 5.00 | 5.12½ | 4.75 | 24.15 | 24.80 | 3.00 | 2.87½ | 3.00 | *22.90 | 5.80 | 35.00 |
| April 4 | 5.00 | 5.12½ | 4.75 | 25.00 | 24.95 | 3.00 | 2.87½ | 3.00 | *22.90 | 5.80 | 35.00 |
| April 5 | 5.00 | 5.12½ | 4.75 | 25.00 | 24.95 | 3.00 | 2.87½ | 3.00 | *22.90 | 5.80 | 35.00 |
| April 6 | 5.00 | 5.12½ | 4.75 | 25.15 | 25.10 | 3.00 | 2.87½ | 3.00 | *22.90 | 5.65 | 35.00 |
| April 7 | 5.25 | 5.37½ | 5.00 | 25.25 | 25.20 | 3.00 | 2.87½ | 3.00 | *22.90 | 5.55 | 35.00 |

*Nominal quotation. Market range 17.90c to 22.90c.

# Equipment

### Buying Continues Spotty with Demand Generally Quiet

**Pittsburgh**—American Bridge Co. is inquiring for a large metal planer for its Ambridge, Pa., shops. This is to be used in connection with the San Francisco transbay bridge. Rolling mill equipment interests here are figuring equipment for finishing round bars to the tolerances described as "sized hot-rolled," mentioned in these columns of STEEL, April 3. Briefly, the equipment, to be superimposed on the present bar mill, comprises a stand of vertical rolls to supplement the final pass on the bar mill. Considerable business is expected to result for equipment makers on this score.

Purchases of mill equipment from the leading interest here continue to be negligible and perhaps greater hesitancy is noted from that direction on purchases than by any of the other mills in this district from which a sustained revival in figuring and buying of up-to-the-minute developments in mill equipment has occurred now for the past month or more. Wheeling Steel Corp. is in the process of moving much of the equipment from its Beech Bottom, W. Va., works into Yorkville, O. The company recently inquired for two annealing furnaces for Yorkville and it is understood that much of the Beech Bottom works will be abandoned.

**Chicago**—Equipment buyers continue cautious in the matter of large expenditures. Inquiry for certain types of machine tools and other plant machinery shows occasional spurts, while orders generally continue light. Inquiry for used equipment has been somewhat more active in certain instances recently than interest in new tools. Railroads are making but few purchases, although the Milwaukee road has taken bids on a lathe and hydraulic press. Action remains to be taken on an inquiry of the Chicago Great Western railroad for a number of tools. Track welders are in a quiet market and although the active track selling season is approaching, little business in this type of equipment is in immediate prospect. Some manufacturers of bottling machinery have received fairly large orders from breweries.

**New York**—Contracts totaling more than $100,000 have been placed by the navy department for machinery and equipment, including the following: Kearney & Trecker Corp., four milling machines; Kemp Machinery Co., two boring and drilling machines with attachments, and two radial drills; Cincinnati Milling Machine Co. and Cincinnati Grinders Inc., two milling machines; Henry Prentiss & Co., milling machine; Lloyd & Arms Inc., four lathes and spares; Sidney Machine Tool Co., two lathes and spares; E. A. Knsey Co., 24-inch shaper; Westinghouse Electric & Mfg. Co., power hoists, air ejectors and spares; Ingersoll-Rand Co., equipment for air ejectors and spares; Williams, White & Co., rotary drill; Orton Crane & Shovel Co., 15-ton locomotive crane and spares.

**Cleveland**—Buying of machinery and plant equipment over the past week has shown no improvement, some dealers being of the opinion that it will be six months before any decisive gains are registered. Brewery equipment, in which considerable steel is required, will not be purchased in any quantities, it is felt, until some idea can be gained of actual beer consumption figures; nevertheless one plant here is working night and day on bottle filling machinery and dispensing equipment.

**Worcester, Mass.**—Machinery and equipment demand continues light. A Connecticut hardware builder is buying new equipment, including a 10-foot anthracite gas producer. New England shops take occasional orders for the navy department and in some instances, where shops have finished equipment for immediate delivery, they have shared in some sizable export business.

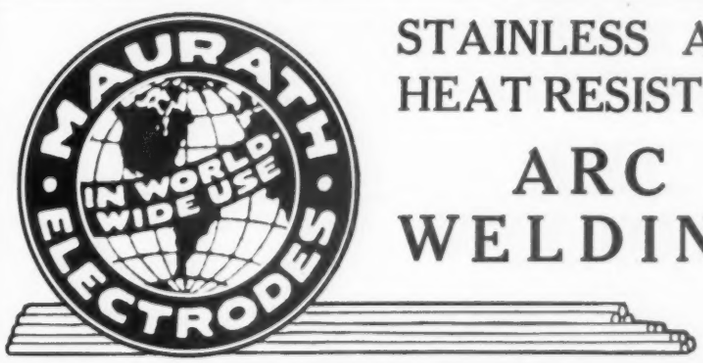
## Crane Orders Show Pickup

New York — New and unfilled orders for overhead cranes gained in February over the previous month, but shipments dropped to two units, according to the Overhead Electric Crane institute.

Tonnage capacity of the two units shipped totaled 20 tons with a value of $8580. In January six units were shipped with a tonnage capacity of 261, valued at $44,315.14.

New orders included eight units, tonnage capacity 47 and valued at $20,993. In January, five units were booked with a tonnage capacity of 44½, valued at $12,703.88.

Unfilled orders March 1 included 25 cranes with a tonnage capacity of 806½, valued at $189,436.88. On Feb. 1 unfilled busines covered 19 units, tonnage capacity 779½, valued at $177,023.88.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# Explosives Used To Break Scrap

ARMORED blasting pits for breaking scrap iron and steel to furnace charging size by explosives recently have come into use in Europe. This development is described by Rudolph Feuchtinger in the April issue of *The Explosives Engineer* magazine, Wilmington, Del.

One of the large pits is situated at the Siemens-Martin-Werk of the Krupp steel plant, Essen, Germany. The pit is 25 feet long, 18 feet wide and 13 feet deep, and its walls are lined with steel plates 12 inches thick. Three large steel slabs, 1 foot thick and weighing a total of 83 tons, cover the pit, these cover plates being equipped with valves for releasing the explosion gases.

To place the explosive charges in the large blocks of scrap metal, holes are burned in them with oxygen torches. The large pieces are lowered into the pit by an electro-magnet and dynamite is loaded into the holes. Sand, clay, plastic masses, iron chips, or similar material, is used as stemming. After covering the pit with the heavy steel plates, the charges are fired by an electric blasting machine.

### Powder Charge Varies

The quantity of dynamite used depends upon the density and shape of the block. A 15-ton steel slab requires 13.3 pounds in three holes; a mill roll weighing 11 tons requires 10 pounds.

The process avoids the precautions and great space necessary to blast large pieces in the open, and has been found considerably more economical than skull cracking, oxygen lance cutting and other methods.

Considerable blasting of iron in the open, however, is being done at the steelworks of A. G. Schoeller-Bleckmann, Ternitz, Austria. Bore holes are covered with strong beams and railroad crossbars to prevent large fragments being thrown. In breaking ingot mold bottoms weighing 8.7 tons, 15 holes are drilled and blasted with 2.5 pounds of explosive.

# Tantalum Carbide and Rapid Tapping Are Discussed

(*Concluded from Page* 24)

dent of the society and chairman of the industrial rehabilitation committee in the seventh district, discussed the accomplishments of his group during the recent program to further improvement and rehabilitation work in industrial plants.

Ramet, the tantalum carbide alloy cutting tool produced by the Ramet Corp. of America, North Chicago, Ill., was described by C. E. Stryker, vice president of the corporation. This alloy is made by combining pure tantalum with lamp black in a high temperature furnace, to produce chemically pure tantalum carbide, and adding other ingredients. This composition is finely ground, pressed to shape and heat treated.

Blanks then are nickel plated and burned in a controlled atmosphere, this plating permitting brazing of the pieces to tool shanks or other supports. The alloy is most commonly used in the form of blanks or tips mounted on steel shanks or in the form of nibs mounted in steel casings to be used as wire dies.

Tantalum carbide has the desirable quality of marked resistance to corrosion. It has low thermal conductivity and a melting point of more than 4000 degrees Cent. The alloy is non-wetting in that it does not adhere readily to other metals, this characteristic making it particularly adaptable to the machining of steel. This is especially true in the case of soft steels, chips of which have a tendency to cut a groove just back of the cutting edge of the tool.

### Six Grades Produced

The material is manufactured in six grades containing varying amounts of tantalum carbide. Strength of the alloy ranges from 175,000 to 300,000 pounds per square inch, with hardness varying from 91 to 86.5 on the Rockwell A scale, depending on the grade.

Mr. Stryker cited various examples of the application of tantalum carbide to machining high-manganese steel castings as well as common grades of rolled steel and other metals in which cutting times were reduced and production per grind was increased.

The material also has been used successfully in the form of wire drawing dies, tube drawing mandrels, for friction disks on certain types of instruments, tile cutting saws, precision instruments and a variety of other applications involving resistance to wear but not requiring any cutting action.

That it is now possible to tap threads at ordinary drilling speeds was demonstrated by H. Goldberg, vice president, R. G. Haskins Co., Chicago. This company recently introduced new high-speed tapping machines capable of operating at tapping speeds of 100 to 300 feet per minute, compared with former practice of 15 to 35 feet per minute. Mr. Goldberg stated that a rigid spindle is imperative in high speed work, a floating spindle resulting in trouble on the reversal of the tap. Several machines in operation on various metals were displayed.

A paper on "Design and Construction on Counterbores and Multiple Operation Tools," prepared by E. Gairing, president, Gairing Tool Co., Detroit, also was presented at the meeting.

# Meet Mooring Mast Needs With Alloy Steel, Welding

(*Concluded from Page* 23)

due to the tension of the bearing cap bolts.

The base for the power plant consisted of two heavy beams to which were welded cross I-beam members. Stiffeners were welded on the outside of the beams. The support for the gas engine consisted of two flange plates welded to the main beams, cross bracing furnishing rigidity to this support. To assure correct alignment the base was machined for engine, generators, and exciter setting. The bed was stiffened by the use of an inverted truss which may be adjusted by means of the turnbuckles to which the tie rods are attached.

The mast hoist, supplying the means to telescope the mast sections, is a double-reduction hoist, the first reduction being herringbone and the second spur gearing, both operating in oil-tight welded cases. The bed of this unit is of welded steel. This type of design lends itself particularly well to welded construction and combines strength and rigidity with a minimum of weight. In producing this bed, the two sides were fabricated as separate units, and after stress annealing were welded to the cross beams and plates forming the base of the bed and support for the motor and brake. The oil-tight gear cases on either side were separate units.

### Details of Winch Construction

Fig. 6 shows the hauling-in winch used to haul the ship into position on the mast. The steel rope anchored in the drum passes over a sheave carried in the fair lead mechanism shown at the bottom of the assembled unit. The fair lead sheave and carriage are actuated through the quick-return screw which maintains the alignment of the fair lead sheave and scored drum. Some 2000 feet of line is wound by the winch which is capable of handling a 25,000 pound pull at speeds from zero to 100 feet per minute.

This winch is a double-reduction hoist, herringbone and spur geared, operating in oil-tight cases. The entire bed is of welded construction with the oil-tight gear cases being integral with the bed. The two lower side frames, supporting the fair lead mechanism, were built as separate units from the oil-tight gear case, outside bearings and motor base. After stress relieving, these parts were welded to the cross channels and beams to form one solid unit.

# Construction and Enterprise

## CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

### New York

ELMIRA, N. Y.—American La-France & Foamite Corp. has taken an order for tanks from the United States war department at a cost of about $150,000.

WELLSVILLE, N. Y.—Sawyer Refining Co., Wallace E. Sawyer, Bolivar, N. Y., president, plans immediate erection of an oil refinery here.

### New Jersey

IRVINGTON, N. J.—National Tool & Die Co., has been incorporated with 2500 shares no par value to manufacture tools, by Karl Adrion and William Zeus, Irvington, N. J., and Julius Unterkofler, Newark, N. J., William Zeus, Irvington, N. J., is attorney.

### Pennsylvania

EASTON, PA.—Ferror Foundry & Mfg. Co. has bought the former plant of the Wilson Foundry Co. Alterations and addition of equipment will be made and production of plow parts and road machinery and equipment will be undertaken.

PITTSBURGH—City council has approved an issue of $200,000 in bonds to pay for improvements to the Herron Hill pumping station, including electrification.

### Ohio

CLEVELAND—Pittsburgh Steel Co. has been incorporated with 250 shares no par value to conduct an iron and steel scrap business, by J. A. Curtis, 1335 Schofield building, Cleveland.

### Michigan

ALPENA, MICH.—John Dehring Bottling Works is considering establishment of a brewery plant at Alpena, Mich.

FLINT, MICH.—C. V. S Mfg. Co., Smith and Water streets, has been incorporated with $16,000 capital to manufacture machinery, by R. B. Vesset, 1326 Beard street, Flint.

FLINT, MICH. — Genessee Brewing Co. is being formed and plans have been completed for remodeling a storage and factory building into a modern brewery at a cost of about $75,000.

JACKSON, MICH. — Kelsey-Hayes Wheel Corp. will remove its equipment to Detroit and be combined with other activities in that city.

MUSKEGON, MICH.—Don Lakie, Grand Rapids, Mich., is preparing plans for remodeling a former brewery and storage building into a modern brewery plant for the Muskegon Brewing Co., Muskegon, Mich.

NEWAYGO, MICH.—Newago Machinery Co. has been incorporated with $50,000 capital to manufacture machinery.

### Indiana

DECATUR, IND.—Charles Brossman, Indianapolis, consulting engineer, is making a survey of the municipal light and power plant with a view to reducing costs and increasing efficiency. Additional equipment probably will be installed when the recommendations have been made.

### Illinois

CHICAGO—Screw Conveyor Corp., 105 West Madison street, has been incorporated with 3000 shares no par value to manufacture machinery, by Smith & Haddad, 105 West Madison street, Chicago.

CHICAGO—Byrd Wendt Aircraft Corp., 1336 South Michigan avenue, has been incorporated with $13,000 preferred and $9000 common stock to manufacture airplanes and accessories, by Mack, Wikoff & Rose, 77 West Washington street, Chicago.

ROCKFORD, ILL.—Rockford Electric Equipment Co., 720 South Wyman street, has been incorporated with $20,000 capital to conduct a general electric business, by Karl C. Williams, News Tower, Rockford.

### Southern States

WASHINGTON—Bids will be received by the secretary of the department of the interior until April 25 for construction and equipment of the chemistry building at Howard University, Washington, for which $350,000 is available. Structure will be of reinforced concrete and steel. Bids include scientific laboratory furniture, electrical installations and elevators.

WASHINGTON—Bureau of supplies and accounts, navy department, will open bids April 11, schedule 9877, for one pot-type electric furnace for Norfolk, Va.; April 18, schedule 9855, one motor-driven hack saw, for San Diego, Calif.; schedule 9857, five portable electric pumps and spare parts, for Mare Island, Calif.; schedule 9886, one box-type electric furnace for Norfolk, Va.

CORDELE, GA.—Work has been begun on the addition to the plant of the Glover Machine Works, which is to house a steelworking department. (Noted March 27).

### Oklahoma

OKLAHOMA CITY, OKLA.—Acme Junk & Auto Supply Co. has been incorporated with $1000 capital to deal in scrap iron, steel and metals, by Ralph Finkelstein, 1929 N. W. Nineteenth street, Oklahoma City.

TULSA, OKLA.—Bell Oil & Gas Co., Kennedy building, has let a contract to the Burrell-Maze Engineering Co., Pittsburgh, for installation of special distillation and vapor recovery units at its refinery at Grandfield, Okla.

### Texas

ABILENE, TEX.—Kirk Oil & Refining Co. has been organized to build an oil refinery, by T. A. Kirk, president.

AMARILLO, TEX.—Amarillo Brake Co. has been incorporated with $10,000 capital to operate an automotive repair shop and garage, by W. H. Wallace, president, Amarillo, Tex.

ARP, TEX.—Arpana Refining Co. has been incorporated by R. J. McMurray to operate an oil refinery already constructed here.

### Wisconsin

GREEN BAY, WIS.—Metropolitan sewerage commission will ask bids soon on a new sewage disposal plant and collecting system to cost about $621,000. Plans are by Jerry Donahue Engineering Co., 608 North Eighth street, Sheboygan, Wis.

HUDSON, WIS.—City council has applied to the Wisconsin public service commission for a certificate of authority to build a complete light and power plant to cost about $60,000. George R. Hosford is city clerk.

MILWAUKEE — Allis-Chalmers Mfg. Co. is low bidder at $1,718,000 on five large turbines for Hoover dam.

MILWAUKEE — Allis-Chalmers Mfg. Co. has received a contract from the city of Austin, Tex., for furnishing and installing a high-pressure condensing steam turbine in the city power plant, at $120,000.

### Pacific Coast

PORTLAND, OREG.—Samuel Murray, engineer, has designed the projected cantilever highway bridge to cross the Columbia river at The Dalles, Oreg. Total length with approaches will be 1600 feet. Cost is estimated at $600,000.

SEATTLE—Eagle Metals Co. has been incorporated with $5000 capital for William Anderson and associates by E. H. Flick, attorney, Hoge building, Seattle.

SEATTLE—Seattle Gas Co. has let a contract to the Semet-Solvay Corp., New York, for a $100,000 improvement to its plant here, including new machinery to allow use of a heavier grade of oil for gas making.

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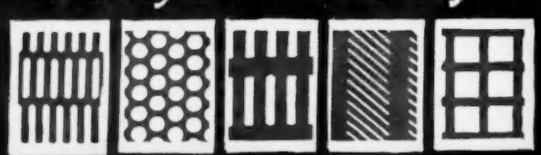

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